DATALOGIC™

R-Series™

User's Manual

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R Series™ - User's Manual

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1 ABOUT THIS MANUAL

This manual has been designed to make using the Datalogic R Series™ devices as simple as possible and provide expert assistance if problems should occur. It contains important information on using the device safely, properly and efficiently.

NOTE

Use the extensive index at the end of this manual to find information quick and easy!

Adhering to the manual helps by avoiding dangers, reducing repair costs and breakdown times and increasing the reliability and lifespan of the Datalogic R Series model.

Datalogic Mobile will not assume responsibility for any damage caused by the improper use of the Datalogic R Series model and/or in disregard of the instructions in this manual.

Within this manual, Datalogic Mobile strives to provide all the information required for using your Datalogic R Series device. However, because this is a versatile product that can be used in many different scenarios, we cannot guarantee that the information contained in this manual will cover every single aspect.

Should you require further information or if you have questions or issues needing clarification, please contact your nearest Datalogic agent or representative.

1.1 DEVICE VERSION DESCRIBED

This manual describes the models R Series-7™, R Series-10™, and R Series-12™ with a board version MDA2.10 05.2006 and above.

The information contained in this manual becomes applicable beginning at the time the corresponding Datalogic R Series model is released.

1.2 FOR QUALIFIED PERSONNEL

This manual was written for qualified personnel. The information is intended exclusively to complement the expertise of qualified personnel , not to replace it.

1.3 DESIGN METHOD

1.3.1 Warnings and notices

Warnings and notices in this manual are indicated as follows:

NOTE

*This symbol indicates **general information** and **hints** that help you to understand how to use the product or the manual.*

CAUTION

*This symbol warns you of any dangers or hazards that could potentially cause **damage to the terminal or system** (such as malfunctions, data loss, equipment damage, etc.).*

WARNING

*This symbol indicates **hazards that pose a risk to life and limb** (such as contacting the power supply).*
You must heed this information!

1.3.2 Additional design elements

Lists are indicated with bullet points, for example:

- DC power packs
- AC power packs

Instructions are numbered, for example:

1. Insert a CD.
2. Press <A>.

Parameter descriptions (e.g., of a dialog)

Ignition off	This parameter is used to set,…
Delay time	This indicates the delay time.
Switch-off time	The switch-off time should be at least…

Key display

Key names are shown in angle brackets: <F1>, <Ctrl>, <Insert>, <Home>, etc.

Menu options, commands, dialog fields

Examples: In the **Edit** menu you will find the command **Paste | Values**. Click **OK** to finish.

Entries

Any text that needs to be entered is shown in `Courier` font, for example:

1. Enter the text `abcdefg`.

Other methods for emphasis

Any other emphasized text elements are highlighted in **bold** or underlined.

References to other chapters in the manual are printed in *italics*.

2 IMPORTANT SAFETY NOTICES

The Datalogic R Series models were designed and built according to modern technology and accepted safety regulations. However, the operation of the Datalogic R Series can endanger personnel or third parties and cause damage to the device and other material assets when for example the device is:

- operated by untrained or uninformed personnel;
- not operated correctly intended usage;
- operated and maintained incorrectly.

The operator commitments in regards to safety (accident prevention regulations, work protection) are to be followed.

2.1 INITIAL OPERATION OF THE DEVICE

Area of application
The device is not designed for use in life-support systems or critical safety systems where system malfunction can lead to the direct or indirect endangerment of human life. The operator shall take full responsibility for using the device in these situations.

The device cannot be used in combination with safety functions for machines and equipment which have to conform to the requirements of EN 954-1.

Choice of location
The ambient conditions at the point of installation must comply with the device's protection class.

Fresh air circulation is required
The Datalogic R Series device employs a passive cooling concept whereby the waste heat generated inside the device is emitted from the surface of the housing. For this system to function properly, sufficient fresh air circulation is required. Never install the system in a closed environment where the cooling air is unable to dissipate accumulated heat to the outside.

If the Datalogic R Series device is not able to draw in fresh cooling air, this may cause overheating and severe damage to the unit. Be sure to comply with the maximum ambient temperature to guarantee correct operation (as specified in par. 3.6*).*

Mounting / Initial operation
The device is not supplied with a disconnector (switch) that can be accessed externally. The power supply connector is therefore used as a disconnector. This must always be easily accessible. If the device is permanently installed, an easily accessible disconnector (such as a switch or automatic circuit breaker) needs to be additionally installed.

The power supply cables must be laid in accordance with the applicable local installation regulations.

Risk of injury
The unit could fall during transit or installation and cause injury. Always enlist the aid of a second person for installing or removing the unit.

2.2 POWER SUPPLY / EXTERNAL PERIPHERAL DEVICES

Low voltage networks
Devices in the Datalogic R Series that have an AC power pack should only be connected to TN and TT networks. IT networks are not permitted as dangerous electric shocks cannot be ruled out here.

Operation in an emergency
In cases of emergency (such as damage to the power cable or housing, or ingress of liquid or other foreign bodies), the device must be disconnected immediately from the power supply. Contact technical support staff at once.

If, after replacement, the fuse fed by the internal power supply blows again, the device must be sent in for servicing immediately

Data cables may never be connected or disconnected during an electrical storm.

External peripheral devices
Before connecting or disconnecting peripheral devices (exception: USB devices), the Datalogic R Series device must be disconnected from the power supply! Otherwise, this could seriously damage both the Datalogic R Series and the connected devices!

Please ensure that external peripheral devices with their own power supply are switched on **at the same time** or **after** the Datalogic R Series device. If this is not possible, please ensure that the Datalogic R Series device is adequately protected from power leakage caused by an external device.

2.3 REPAIRS ONLY THROUGH DATALOGIC

As a rule, never carry out repairs on the device yourself. Always contact Datalogic's technical support and send in your unit for repair if necessary.

The information required by our technical support is given on the type plate located at the back of the unit. This designation contains important technical information on the functions and assembly of your device. Always provide technicians with the entire model designation and serial number.

2.4 OPENING AND CLOSING THE DEVICE

If you choose to open the Datalogic R Series device at your own risk, please make sure you observe the safety instructions from the previous pages.

Persons authorised to open and close the device
The Datalogic R Series device may only be opened for the purposes of adding or exchanging modules. Only qualified electrical or electronics engineers or persons trained by Datalogic are authorized to carry out such work.

Tools
When working on the device, only use the appropriate tools as listed in chapter 20.

Power supply
Prior to opening the device, ensure that the operating system has been shut down correctly and that the device is disconnected from the power supply. If the Datalogic R Series device is equipped with an optional **UPS battery**, only open the device after the power LED has extinguished.

On opening and closing the device, pay attention to the following
Note that even the intrusion of extremely small metallic splinters or small amounts of moisture can put the Datalogic R Series device out of service. Always open the device in a weather-protected environment that is as dust-free as possible.

The touch screen should always be kept free of dirt, dust, finger marks and so on to ensure full visibility of the display. Ensure that the touch screen does not get scratched or otherwise damaged, before placing the device face down.

Note that opening the front of the device by more than 180° will damage the plastic hinges.

If you open the device, disconnect the cable connections to the front of the display. Be sure to first read the mounting instructions for the Datalogic R Series.

Before closing the device, please ensure that the cable connections to the front of the display have been replaced correctly. Make sure the cables are not unduly stressed or bent.

Device seal
The face of the Datalogic R Series device has a protective seal glued into its frame. Do not attempt to remove the seal, as this will cause irreversible damage to it and render it unusable.

Before closing the device, ensure the seal is seated properly between the face and the device housing – especially for devices compliant with protection class IP65.

Visually check the seal for defects (tears, cuts) and foreign bodies (dirt).

Please read the specific mounting instructions for devices with protection class IP65. If you see any damage or are unsure about possible damage, contact the technical service department of Datalogic.

Replacing the seal on IP65 devices
Never replace the glued-in seal on devices compliant with protection class IP65 yourself. This will instantly void all present and future guarantee and liability claims.

Closing the device
The front is attached to the base unit using hexagonal screws (M5 x 20 with an inside diameter of 3 mm). In all devices, these screws must be retightened with a torque wrench.

Retighten all the hexagonal screws in a **cross-wise** pattern to the following torque:

Datalogic R Series-7: **3 Nm**
Datalogic R Series-10: **3 Nm**
Datalogic R Series-12: **4 Nm**

Tighten both screws in the temporary cap and antenna cap to a torque of **1 Nm**.

Please be aware that any test marks and the guarantee may lose their validity if the device has been improperly operated or opened/closed. For devices compliant with protection class IP65, for example, Datalogic no longer guarantees the safety rating if the device has been improperly opened or closed by persons insufficiently qualified.

2.5 EXCHANGING AND EXTENDING MODULES

Carefully follow the notices on opening and closing the device!

Persons qualified to handle replacement or expansion
Devices belonging to the Datalogic R Series may only be opened for the purposes of adding or replacing modules. Only qualified electrical or electronics engineers or persons trained by Datalogic are authorized to carry out such work.

Fuse failure
If the fuse for the integrated power supply blows immediately after being replaced, send the unit to us for servicing without delay.

No battery changes
The RTC of the Datalogic R Series device is powered by a lithium battery fixed to the motherboard. This battery **should not be exchanged under any circumstances**, as this requires soldering! Should a lithium-battery change be necessary, the device must be sent to Datalogic. Changing the lithium battery yourself will instantly void all present and future guarantee and liability claims

Use of an unsuitable battery or incorrect installation may cause the battery to explode!

Components approved by Datalogic
When adding and exchanging modules, only use components approved by Datalogic for use in the Datalogic R Series device. Before installing a component, please contact Datalogic to ensure that the desired module can be exchanged or installed

When installing expansion modules, proceed with utmost caution. Any damage caused while installing or replacing modules will instantly void all present and future guarantee and liability claims

Damage to the computer system
To avoid damage to the motherboard and/or other computer components, only install modules in the designated slots.

Never physically touch the motherboard or any electrical components in a non-ESD-protected area, as this may cause damage to the motherboard. Before physically touching motherboards or electrical components, make sure that you are working within an ESD-protected area.

System overload
To avoid system overloads, check the total acceptable load for all of the installed components

Ensure that the input power for each device is within the permitted threshold (see technical specifications for the corresponding device).

2.6 CE MARKING

This product and its authorized peripheral devices comply with all of the requirements for the CE marking for use at home or in commercial or light industrial applications.

NOTE

This is a Class A product. In a domestic environment this product may cause radio interferences in which case the user may be required to take appropriate measures.

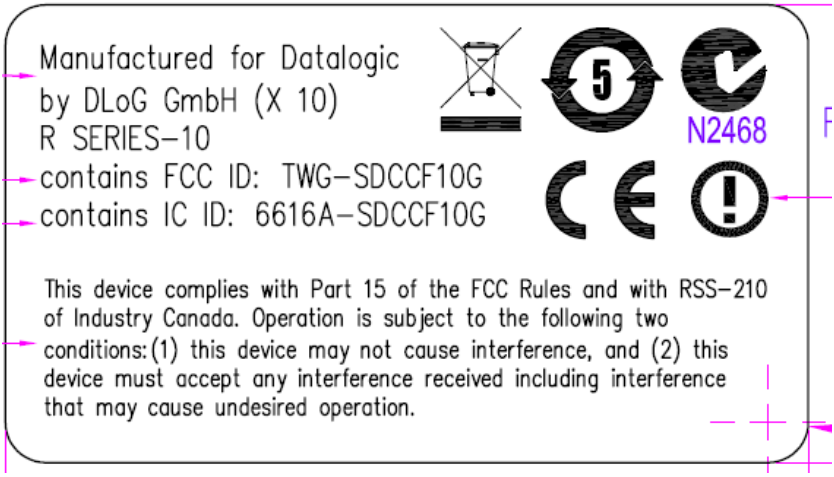


Figure 2-1: CE Marking

2.7 RTTE DIRECTIVE 1999/5/EC

With regard to the RTTE Directive 1999/5/EC the statements in the declaration of conformity for the Datalogic R Series device (see page 2 of this handbook) apply.

2.7.1 Radio Compliance User Information

ENGLISH

Contact the competent authority responsible for the management of radio frequency devices of your country to verify any possible restrictions or licenses required. Refer to the web site http://europa.eu.int/comm/enterprise/rtte/spectr.htm for further information.

ITALIANO

Contatta l'autorità competente per la gestione degli apparati a radio frequenza del tuo paese, per verificare eventuali restrizioni o licenze. Ulteriori informazioni sono disponibili sul sito:
http://europa.eu.int/comm/enterprise/rtte/spectr.htm.

FRANÇAIS

Contactez l'autorité compétente en la gestion des appareils à radio fréquence de votre pays pour vérifier d'éventuelles restrictions ou licences. Pour tout renseignement vous pouvez vous adresser au site web:
http://europa.eu.int/comm/enterprise/rtte/spectr.htm.

DEUTSCH

Wenden Sie sich an die für Radiofrequenzgeräte zuständige Behörde Ihres Landes, um zu prüfen ob es Einschränkungen gibt, oder eine Lizenz erforderlich ist. Weitere Informationen finden Sie auf der Web Seite:
http://europa.eu.int/comm/enterprise/rtte/spectr.htm.

ESPAÑOL

Contacta la autoridad competente para la gestión de los dispositivos de radio frecuencia de tu país, para verificar cualesquiera restricciones o licencias posibles requerida. Además se puede encontrar mas información en el sitio web:
http://europa.eu.int/comm/enterprise/rtte/spectr.htm.

2.7.2 Special regulations in France

Due to restrictions imposed by the French government, the Datalogic R Series models with WLAN 802.11b is only permitted for use indoors.

On private property the product is allowed to be used outdoors, however only with previous approval from France's Ministry of Defense.

2.8 FCC USER INFORMATION

2.8.1 Interference declaration of the Federal Communications Commission

This equipment has been tested and found to comply with the limits for a **Class A** digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada.
Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

FCC warning: Any change or modification which is not expressly approved in the corresponding pages can lead to the withdrawal of the operating license for this device.
In order to comply with the FCC requirements regarding radio frequency exposure from vehicle-mounted transmission devices the antenna has to be kept at least 20 cm away from people.

2.8.2 Transmission of radio frequencies

Use care in airplanes or in clinical/medical areas
Some devices in hospitals and airplanes are not protected from radio frequency energy. Consequently, do not use the Datalogic R Series device in airplanes or hospitals without prior authorization. Here use of the Datalogic R Series device is only permitted if authorization is obtained.

Caution with pacemakers
Do not use the Datalogic R Series device near pacemakers.

The Datalogic R Series device can affect the function of medically implanted devices such as pacemakers and create interference. Do not place the Datalogic R Series device near such devices.

Keep a minimum distance of 20 cm between such a device and the Datalogic R Series in order to reduce the risk of interference.

If you have reason to assume that interference has occurred, then turn the Datalogic R Series device off and consult a heart expert.

2.9 WEEE COMPLIANCE

Informazione degli utenti ai sensi della Direttiva Europea 2002/96/EC

L'apparecchiatura che riporta il simbolo del bidone barrato deve essere smaltita, alla fine della sua vita utile, separatamente dai rifiuti urbani.

Smaltire l'apparecchiatura in conformità alla presente Direttiva consente di:

- evitare possibili conseguenze negative per l'ambiente e per la salute umana che potrebbero invece essere causati dall'errato smaltimento dello stesso;
- recuperare materiali di cui è composto al fine di ottenere un importante risparmio di energia e di risorse.

Per maggiori dettagli sulle modalità di smaltimento, contattare il Fornitore dal quale è stata acquistata l'apparecchiatura o consultare la sezione dedicata sul sito www.mobile.datalogic.com.

Information for the user in accordance with the European Commission Directive 2002/96/EC

At the end of its useful life, the product marked with the crossed out wheeled wastebin must be disposed of separately from urban waste.

Disposing of the product according to this Directive:

- avoids potentially negative consequences to the environment and human health which otherwise could be caused by incorrect disposal
- enables the recovery of materials to obtain a significant savings of energy and resources.

For more detailed information about disposal, contact the supplier that provided you with the product in question or consult the dedicated section at the website www.mobile.datalogic.com.

Information aux utilisateurs concernant la Directive Européenne 2002/96/EC

Au terme de sa vie utile, le produit qui porte le symbole d'un caisson à ordures barré ne doit pas être éliminé avec les déchets urbains.

Éliminer ce produit selon cette Directive permet de:

- éviter les retombées négatives pour l'environnement et la santé dérivant d'une élimination incorrecte
- récupérer les matériaux dans le but d'une économie importante en termes d'énergie et de ressources

Pour obtenir des informations complémentaires concernant l'élimination, veuillez contacter le fournisseur auprès duquel vous avez acheté le produit ou consulter la section consacrée au site Web www.mobile.datalogic.com.

Información para el usuario de accuerdo con la Directiva Europea 2002/96/CE

Al final de su vida útil, el producto marcado con un simbolo de contenedor de bassura móvil tachado no debe eliminarse junto a los desechos urbanos.

Eliminar este producto de accuerdo con la Directiva permite de:

- evitar posibles consecuencias negativas para el medio ambiente y la salud derivadas de una eliminación inadecuada
- recuperar los materiales obteniendo así un ahorro importante de energía y recursos

Para obtener una información más detallada sobre la eliminación, por favor, póngase en contacto con el proveedor donde lo compró o consultar la sección dedicada en el Web site www.mobile.datalogic.com.

Benutzerinformation bezüglich Richtlinie 2002/96/EC der europäischen Kommission

Am Ende des Gerätelebenszyklus darf das Produkt nicht über den städtischen Hausmüll entsorgt werden. Eine entsprechende Mülltrennung ist erforderlich.

Beseitigung des Produkts entsprechend der Richtlinie:

- verhindert negative Auswirkungen für die Umwelt und die Gesundheit der Menschen
- ermöglicht die Wiederverwendung der Materialien und spart somit Energie und Resourcen

Weitere Informationen zu dieser Richtlinie erhalten sie von ihrem Lieferanten über den sie das Produkt erworben haben, oder besuchen sie unsere Hompage unter www.mobile.datalogic.com.

3 DEVICE DESCRIPTION

3.1 GENERAL

Thank you for choosing the Datalogic R Series!

Datalogic R Series devices are multi-functional terminals designed for stationary and mobile use. They are equipped with an Intel PXA270 processor and work with Windows CE 5.0 operating system.

Thanks to the robust design (with aluminum housing), the device provides effective protection against mechanical, electrical and chemical damage and extreme ambient temperatures. It is designed without an external fan to lower maintenance requirements

The key advantage of the Datalogic R Series lies in its diverse functionality and compact design. Various mounting brackets allow installation in the most confined spaces.

The Datalogic R Series is available with various display options.

Figure 3-1: R Series-7, horizontal display

Figure 3-2: R Series-10 and R Series-12

3.2 INTENDED USAGE

The Datalogic R Series-7, R Series-10 and R Series-12 devices are multifunction terminals for stationary and mobile use in commercial applications (for example logistics, storage, manufacturing, automotive).

A different or extraordinary usage is not permitted. For resulting damage the user/operator of the Datalogic R Series device is solely responsible. This also applies to any changes you make to the device.

Compliance with the contents of the safety guidelines is particularly important for the proper use of this device.

3.3 MODELS

The information in this manual applies to all current models of Datalogic R Series.

Datalogic R Series-7	**7“ vertical display**	**7“ horizontal display**
4 Shortcut keys		
17 Shortcut keys		x
Datalogic R Series-10	**10,4“ display**	
4 Shortcut keys		
25 Shortcut keys	x	
Datalogic R Series-12	**12,1“ display**	
4 Shortcut keys		
25 Shortcut keys	x	

Any differences between the devices will be clearly noted in this manual.

3.4 ABBREVIATIONS USED FOR DEVICES AND ACCESSORIES

Please note that to save space on the Datalogic R Series device and supplied accessories, the following abbreviations have been used:

Abbreviation	**Explanation**
+	DC+
-	DC-
Ign	Ignition

3.5 DEVICE DESCRIPTION AND TYPE IDENTIFICATION

3.5.1 Device type plate

The device type plate on the Datalogic R Series contains the following information:

Datalogic R Series-7 Datalogic R Series-10 Datalogic R Series-12	Describes the device with display size (7”, 10” or 12”)
QWVGA / SVGA	Display resolution
DC / AC	Type of power supply, the following numbers (1-9) indicate the exact type of power supply with input voltage
AV / AH / U	The following characters describe device options: AV stands for vertical display AH stands for horizontal display U stands for the UPS battery option
e.g. 24/48 V with 1,5/0,75 A	Input voltage for the DC power supply with nominal current
S/N ...	The serial number consists of 10 digits and includes: Char 1/2 – F9 fixed information Char 3/4 – 2 digit year of manufacture Char 5/6/7 – Julian date of manufacture Char 8/9/10 – sequential number within the day of manufacture

Example of a device type plate:

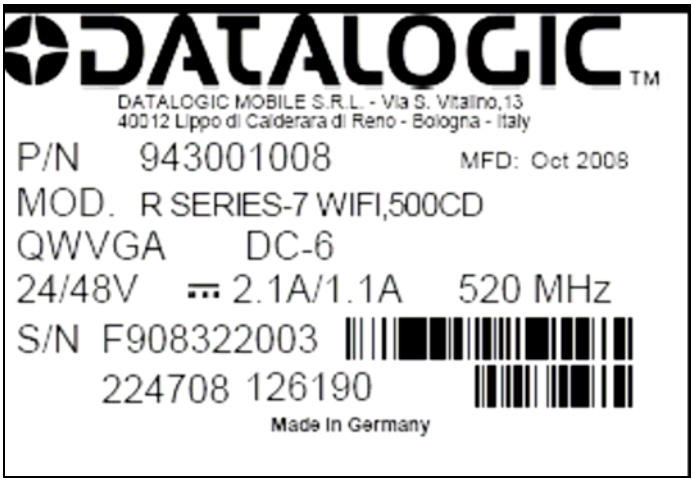


Figure 3-3: Example of a device type plate

3.6 TECHNICAL SPECIFICATIONS

3.6.1 System equipment

Mechanical

Housing

Rugged aluminum-cast housing with integrated heat sink
Hardly combustible plastic parts (acc. to UL94V-0)
Protection class IP54
Upgradeable to IP65
ESD protected
Weight:
Datalogic R Series-7: approx. 2,5 kg
Datalogic R Series-10: approx. 5 kg
Datalogic R Series-12: approx. 5 kg

Display panel

Datalogic R Series-7:
7“ QWVGA, 500 cd/m^2 at +20 °C, with automatic and manual brightness adjustment

Datalogic R Series-10:
10,4” SVGA, 230cd/m^2 at +20 °C, optional 4-wire touch screen, with automatic and manual brightness adjustment
10,4” SVGA, 400cd/m^2 at +20 °C, 4-wire touch screen, with automatic and manual brightness adjustment

Datalogic R Series-12:
12,1” SVGA, 350cd/m^2 at +20 °C, 4-wire touch screen, with automatic and manual brightness adjustment

Bottom

Cable cover (splash guard)
Optional antenna fitting for WLAN

Mainboard

CPU	Intel PXA 270 up to 520 MHz
Cache	32 kB instruction + 32 kB integrated data cache
RAM	128 MB onboard Fully cacheable SDRAM technology
Flash	128 MB onboard
Firmware	Microsoft EBOOT
Real-time clock	Real-time clock with 3 V Lithium-Battery
Serial ports	1st Serial port (COM1): 115.200 Baud max (16550A compatible, 64 bytes FIFO) Full function Supportsviaalconnectors ESD level 3 protected (acc. to EN 61000-4-2) – not 20 mA 2nd Serial port (COM2): 115.200 Baud max (16550A/16750 compatible, 64 Byte FIFO) Supports RS-232 on an external 9-pin D-Sub connection Supports RS-422/RS-485 via adaptor ESD level 3 protected (acc. to EN 61000-4-2)
Keyboard, mouse connection	Via USB-Port
USB connection	1x Host USB connector (USB 2.0 low/full speed) with fuse-protected USB-A socket, 0.5 A per channel 1x Host USB connector (USB 2.0 low/full speed) with fuse-protected USB-Mini-A socket*, 0.5 A per channel 1x Slave USB connector (only for Microsoft ActiveSync)* ESD protection, Level 3 (acc. to EN 61000-4-2) * Alternative (configured with PD.EXE)
Software compatibility	Microsoft Windows CE

LCD interface

Graphics controller	Integrated in PXA 270 Shared memory architecture Internal plug-in connector Driver installed in Image

Touch interface

Analog touch controller	10-bit touch controller for 4-wire touch screens Driver installed
Analog touch connection	Internal plug-in connector Interface is ESD level 3 protected (acc. to EN 61000-4-2)

PCMCIA interface

PCMCIA controller	Integrated in PXA 270 Driver installed in Image
PCMCIA slot	1 x type 1, accessible via the side of the device

CompactFlash interface

CF controller	Integrated in PXA 270 Driver installed in Image
CF slot	1 x type 1, accessible via the side of the device

SD/SDIO interface

SDIO controller	Integrated in PXA 270 Driver installed in Image
SDIO slot	1 x type 1, accessible via the side of the device

3.6.2 Power supply / Power packs

DC Power packs (internal)

(The device model is displayed on the device label).

DC power pack	24/48 VDC nominal (down to 11 V for 20 s max.)
24/48 VDC	Voltage range: 18 to 59 VDC
60 W internal	Bridges power outages of 5 ms
Type: DC-2	Electrically-isolated
	Maximum output 60 W
	Switch off automatic (option)
	Heating (option)
	Withstands bursts up to 2 kV
	Primary nominal current 3,7 A
	Connection only to SELV circuit[1)]

DC power pack	12/48 VDC nominal (down to 11 V for 20 s max.)
24/48 VDC	Voltage range: 18 to 59 VDC
100 W internal	Bridges power outages of 5 ms
Type: DC-3	Electrically-isolated
	Maximum output 100 W
	Switch off automatic (option)
	Heating (option)
	Withstands bursts up to 2 kV
	Primary nominal current 6,2 A
	Connection only to SELV circuit[2)]

DC power pack	24/48 VDC nominal (down to 10 V for 20 s max.)
24/48 VDC	Voltage range: 18 bup to 60 VDC
40 W internal	Bridges power outages from 5 ms (24 VDC)
Type: DC-6	Electrically-isolated
	Maximum output: 30 W
	Withstands bursts up to 2 kV
	Primary nominal current 1,5 / 0,75 A
	Connection only to SELV circuit[4)]

1) to 5) The SELV circuit is a secondary circuit that is designed and protected in such a way that its voltages will not exceed a safe value if the device is properly used or a single error occurs.

3.6.3 Maximal power available for peripheral devices

Power adaptor	Power
DC-6	15 W (30 W 24/48 V)
DC-2	40 W (60 W 24/48 V)
DC-3	40 W (100 W 24/48 V)

Environmental conditions

Operating temperature
All specifications in accordance with EN 60068-2-1/2
Datalogic R Series-7: 0 °C to +50 °C
Datalogic R Series-10 and R Series-12: 0 to +50 °C
Datalogic R Series-10 and R Series-12 with heating option: -30 °C to +50 °C

Storage temperature
All specifications in accordance with EN 60068-2-1/2
Datalogic R Series-7: -35 °C to +65 °C
Datalogic R Series-10 and R Series-12: -20 °C to +60 °C

Relative humidity
In accordance with EN 60068-2-3
10 % to 90 % at 40 °C, non-condensating

Resistance to mechanical shock and vibrations
Class 7M3 in accordance with EN 60721-3-5 1998 (ground vehicles)
1.5 hours 3 g effective noise and 300 vibrations with 30 g peaks or US Highway Truck according to MIL-STD 810F: 2000 (Department of Defense), 3 hours 1 g effective noise and 600 vibrations with 20 g peaks

3.6.4 Test marks

CE
EN 55022 Class A
EN 61000-3-2, EN61000-3-3, EN 61000-6-2
IEC 60950-1, EN 60950-1, UL 60950-1

3.6.5 Dimensions

Dimensions Datalogic R Series-7

Front view

Dimensions without add-ons (in mm):

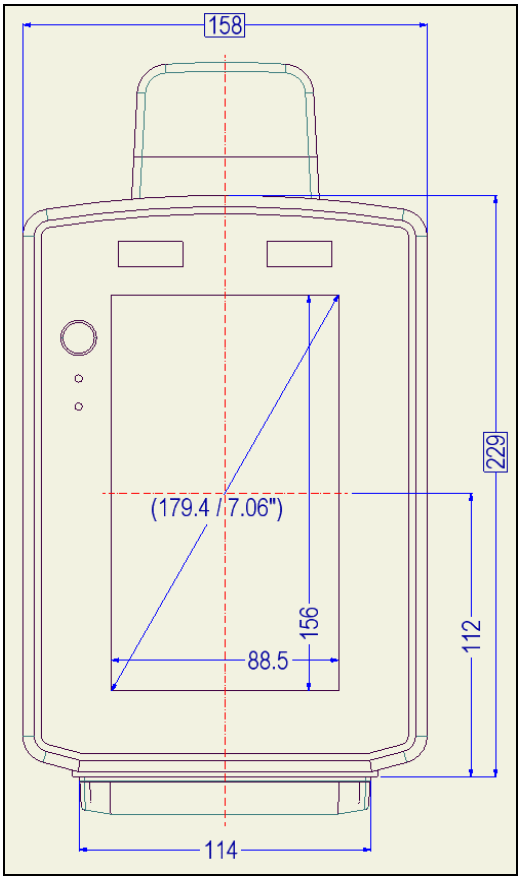


Figure 3-4: Dimensions Datalogic R Series-7 front view

Side view

Dimensions without add-ons (in mm):

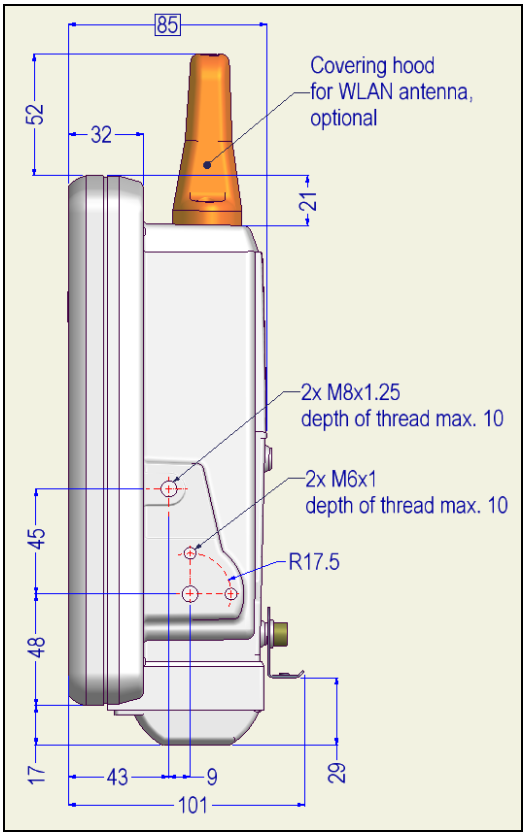


Figure 3-5: Dimensions Datalogic R Series-7 side view

Top view

Dimensions without add-ons (in mm):

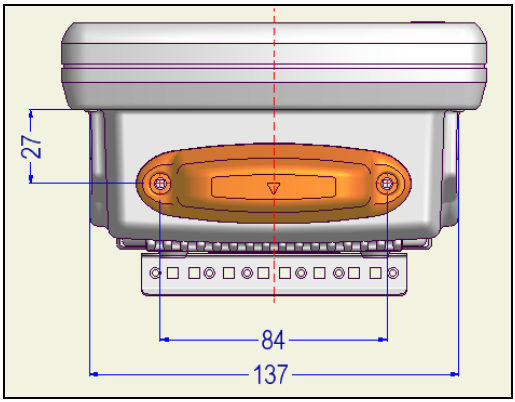


Figure 3-6: Dimensions Datalogic R Series-7 top view

Dimensions Datalogic R Series-10

Front view

Dimensions without add-ons (in mm):

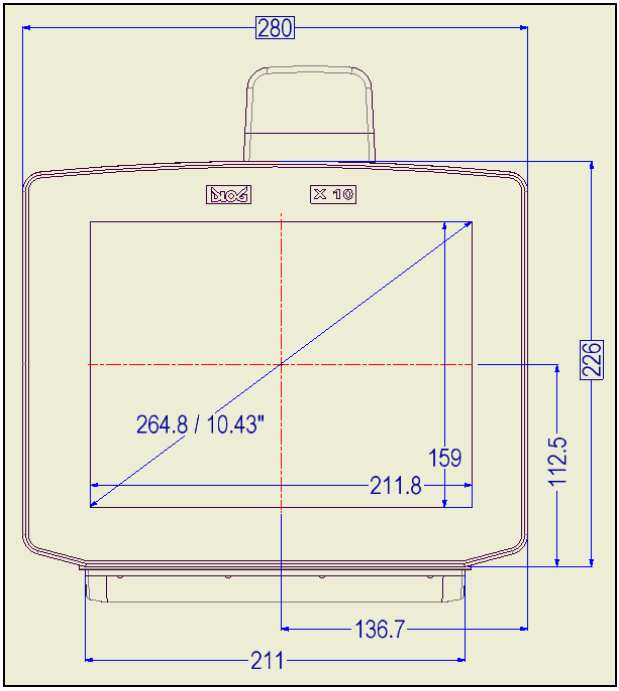


Figure 3-7: Dimensions Datalogic R Series-10 front view

Side view

Dimensions without add-ons (in mm):

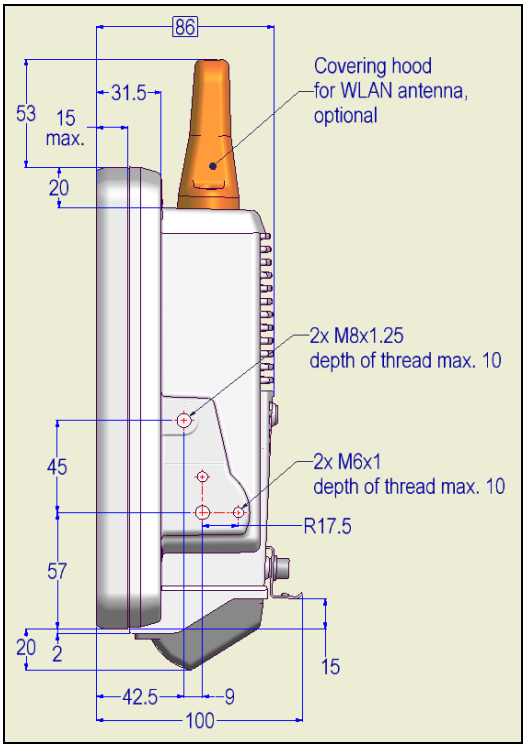


Figure 3-8: Dimensions Datalogic R Series-10 side view

Top view

Dimensions without add-ons (in mm):

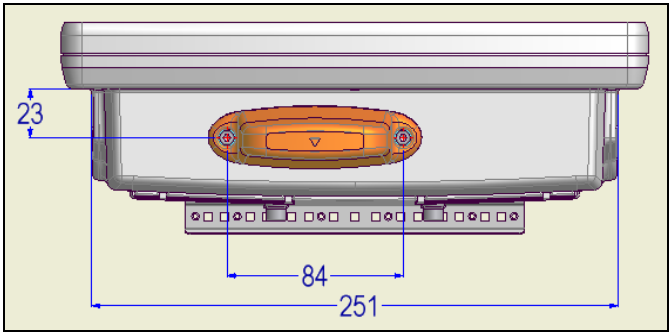


Figure 3-9: Dimensions Datalogic R Series-10 top view

Dimensions Datalogic R Series-12

Front view

Dimensions without add-ons (in mm):

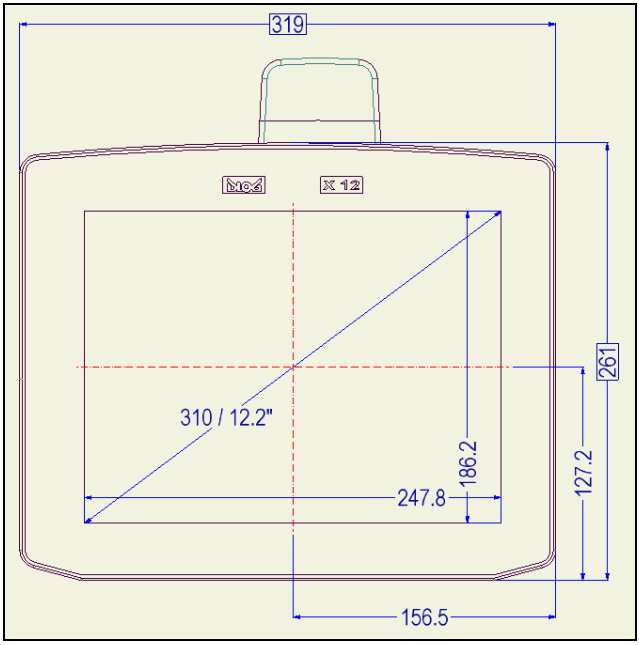


Figure 3-10: Dimensions Datalogic R Series-12 front view

Side view

Dimensions without add-ons (in mm):

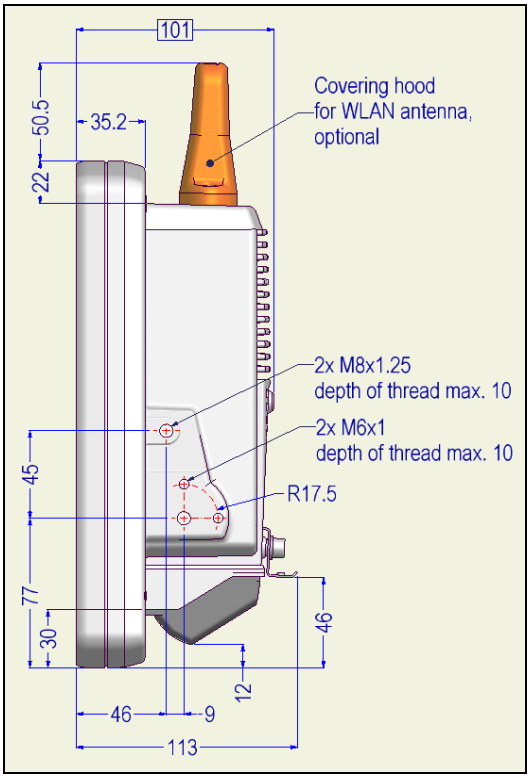


Figure 3-11: Dimensions Datalogic R Series-12 side view

Top view

Dimensions without add-ons (in mm):

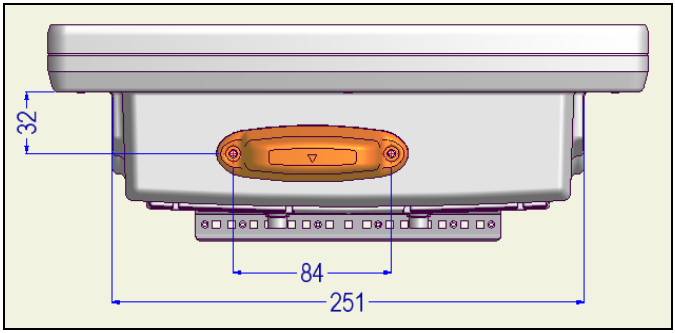


Figure 3-12: Dimensions Datalogic R Series-12 top view

3.6.6 VESA drill holes

VESA drill holes Datalogic R Series-7

This drawing indicates the Datalogic R Series-7's VESA drill holes:

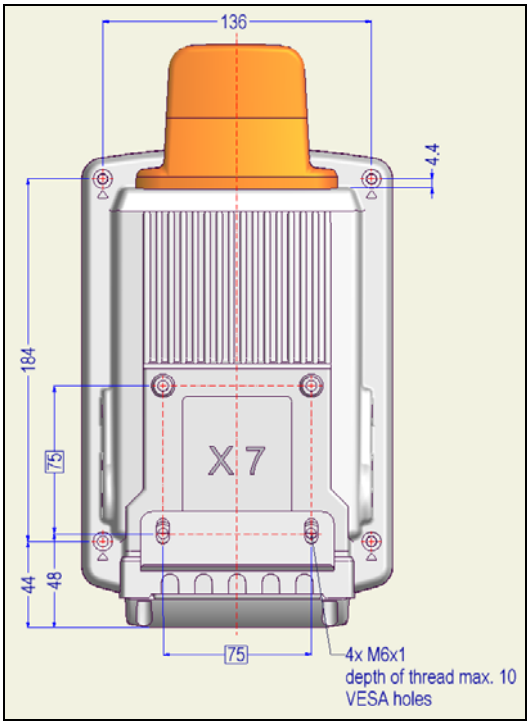


Figure 3-13: VESA drill holes Datalogic R Series-7

VESA drill holes Datalogic R Series-10

This drawing indicates the Datalogic R Series-10's VESA drill holes:

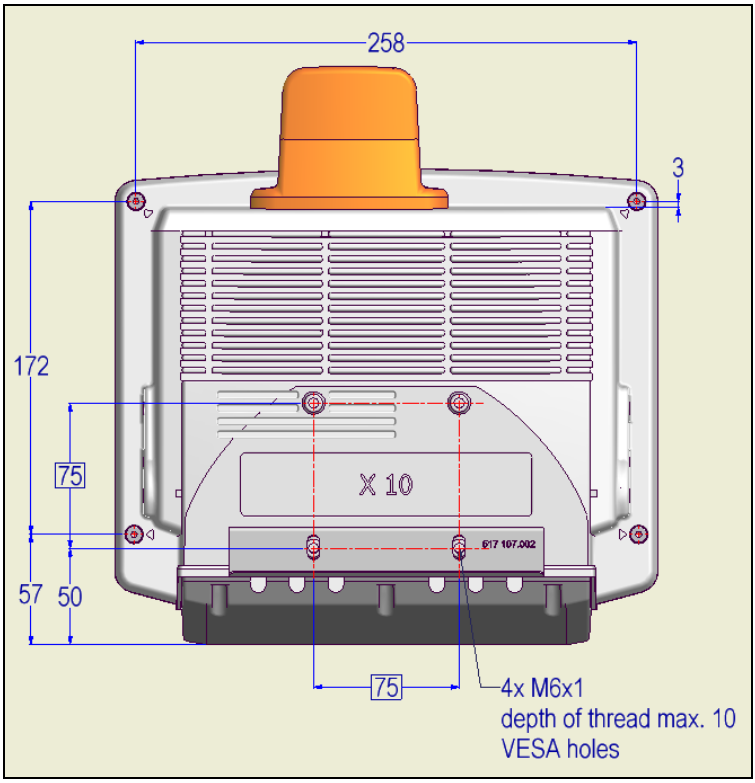


Figure 3-14: VESA drill holes Datalogic R Series-10

VESA drill holes Datalogic R Series-12

This drawing indicates the Datalogic R Series-12's VESA drill holes:

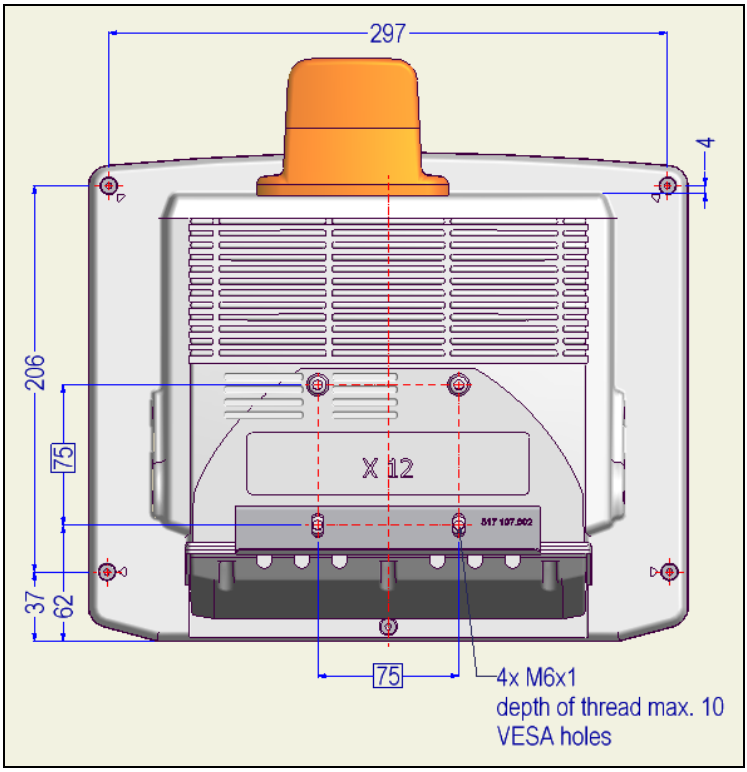


Figure 3-15: VESA drill holes Datalogic R Series-12

4 UNPACKING THE DEVICE

4.1 SCOPE OF DELIVERY

The delivery includes at least the following components:

- The ordered Datalogic R Series model
- One cable cover (standard = IP65)
- One connecting cable for DC connection
- One CD containing software and an electronic copy of the manual.

NOTE

Please verify the delivery contents immediately on receipt.

4.2 PACKAGING

The packaging material has been selected to optimally protect your device while simultaneously offering the best possible ecological compatibility. We therefore kindly request that you store the original packaging material or ensure it is used for another suitable purpose such as transporting the unit or returning shipment.

CAUTION

If you repack the device, please ensure that the cling wrap in the cardboard frame is positioned towards the front of the device so that it can provide the proper protection

4.3 RETURNING YOUR DEVICE

Due care was exercised when putting together the contents of your delivery and dispatching your device. Nevertheless, if you still have cause for complaint, please complete the form included in the appendix.

Should you need to return the device, please use the original packaging.

5 INITIAL OPERATION

CAUTION

Before operating the unit for the first time, carefully read the Safety notices at the start of this manual.

5.1 COOLING THROUGH THE SUPPLY OF FRESH AIR

The Datalogic R Series devices employ a passive cooling concept whereby the waste heat generated inside the device is emitted from the surface of the housing. For this system to function properly, sufficient fresh air circulation is required.

Never install the system in a closed environment where the cooling air is unable to dissipate accumulated heat to the outside.

CAUTION

If the Datalogic R Series device is not able to draw in fresh cooling air, this may cause overheating and severe damage to the unit.

Be sure to comply with the maximum ambient temperature to guarantee correct operation (as specified in chapter 3.6).

5.2 EXTERNAL CONNECTORS DATALOGIC R SERIES-7™

5.2.1 Standard connectors

This section describes the Datalogic R Series-7 standard plug-in connectors.

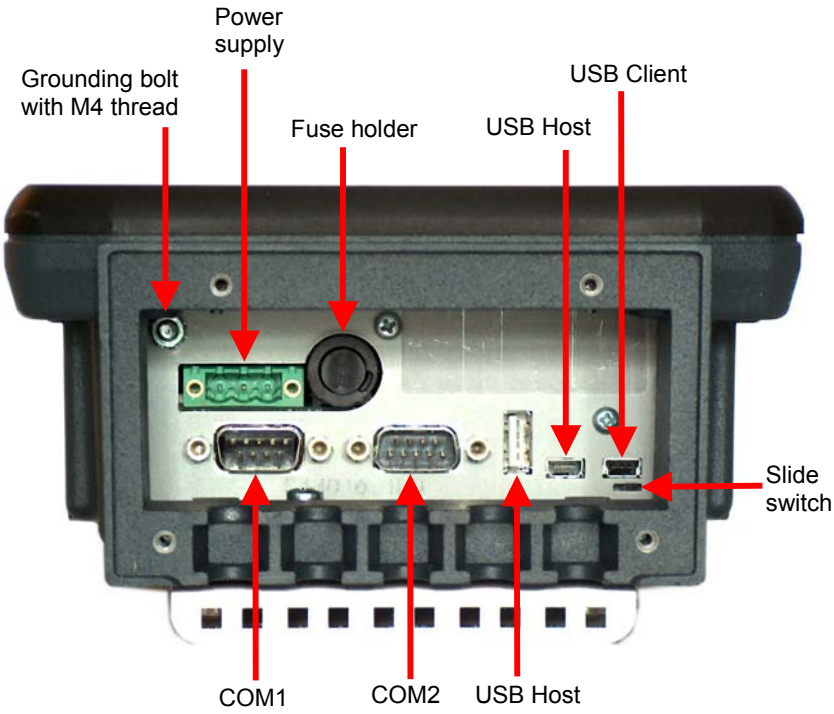


Figure 5-1: External connectors on the Datalogic R Series-7, DC version

5.2.2 Optional connectors

Read more about the optional connectors in the following sections:

12.2 COM2 Options.

5.2.3 Power pack model

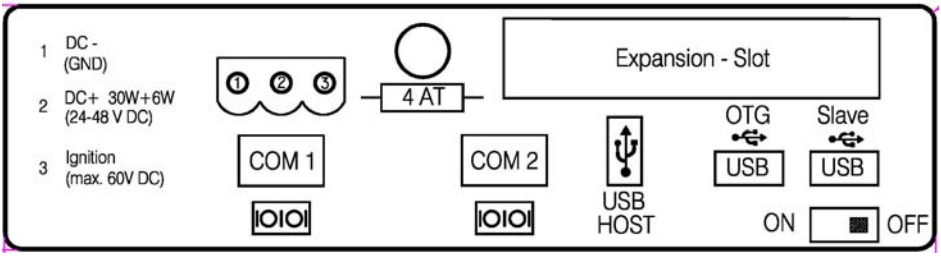


Figure 5-2: External connectors Datalogic R Series-7, DC 24/48 V, 30 W

DC voltage supply connector

Version: Phoenix Combicon, 3pol.

WARNING

Before operating the unit, carefully read all the Important safety notices at the beginning of this manual. If you do not follow the safety instructions provided, the system may become damaged and all present or future guarantee and liability claims will be voided..

External view:

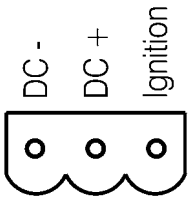


Figure 5-3: DC connector (external view)

Explanation: Ignition on means that a control signal has to be routed to this connection (e.g., ignition of a vehicle) that matches the supply voltage level and can supply at least 2 W. The signal reference is DC-.

5.3 EXTERNAL CONNECTORS DATALOGIC R SERIES-10™ AND DATALOGIC R SERIES-12™

5.3.1 Standard connectors

The standard connectors correspond to the External connectors Datalogic R Series-7.

5.3.2 Optional connectors

Read more about the optional connectors in the following sections:

12.2 COM2 Options.

5.3.3 Power pack models

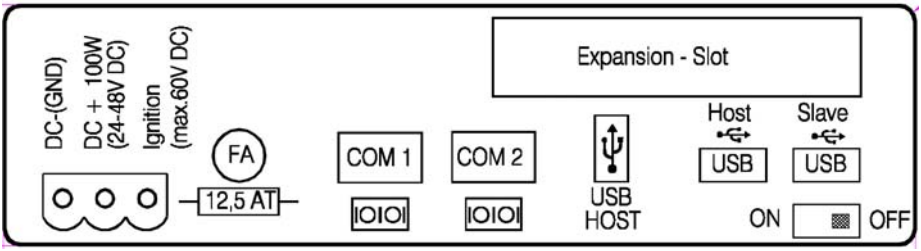


Figure 5-4: External connectors Datalogic R Series-10 / R Series-12, DC 24/48 V, 100 W

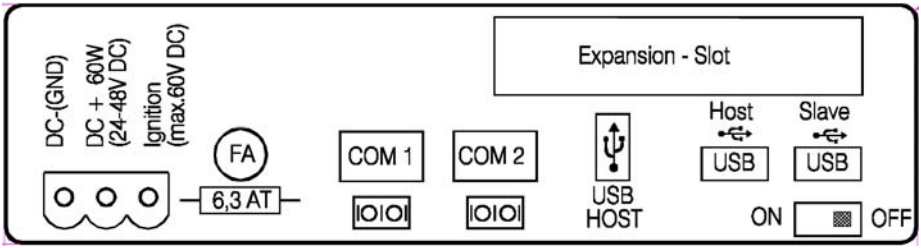


Figure 5-5: External connectors Datalogic R Series-10 / R Series-12, DC 24/48 V, 60 W

5.4 CONNECTING/DISCONNECTING EXTERNAL DEVICES

5.4.1 USB connection

When connecting or disconnecting USB devices, be sure to note the maximum current that the USB connections can supply.
The cable should also be fitted with a strain relief.
No other specific precautions are required for the Datalogic R Series devices.

5.4.2 COM connection

Before connecting or disconnecting devices to a COM port on the Datalogic R Series device, you must first disconnect the Datalogic R Series device from the power supply

Initial operation with external peripheral devices

CAUTION

Before connecting or disconnecting peripheral devices to a COM port, the Datalogic R Series device must be disconnected from the power supply. Otherwise, both the Datalogic R Series device and the connected device can be seriously damaged!

Make sure that external peripheral devices with their own power supply are switched on at the same time or after you start the Datalogic R Series device. If this is not possible, you need to make sure that the Datalogic R Series device is adequately protected from any power leakages caused by the external devices.

Always shut down the Datalogic R Series device as follows:

1. If your Datalogic R Series device has automatic switch off, shut down the device using the ignition input.
2. If your device has an activated <Power> button, shut it down using this button.
3. Remove the cable cover.
4. Isolate the supply voltage (tighten the plug).

The Datalogic R Series device is shut down once the **Power** LED switches off!

Powering up the Datalogic R Series device

Only power up the Datalogic R Series device when all devices have been connected and the Datalogic R Series device has been properly closed (remember the cable cover).

Check that the plug for the power supply and the plug in the COM jacks (if any) are screwed on.

Otherwise, you may damage the Datalogic R Series device.

5.5 POWERING UP THE DEVICE

To power up the Datalogic R Series device, connect it to an appropriate power supply and, depending on the model, press either the <Power> button or the ignition signal.

Peripheral devices/equipment

If peripheral devices/equipment are used, they must be connected **before** you switch on the Datalogic R Series device.

Only power up the Datalogic R Series device after all external devices have been connected.

CAUTION

Make sure there is a suitable disconnecting device such as a power switch or circuit breaker in the power supply circuit.

5.6 REMOVING THE PROTECTIVE FILM FROM THE FRONT

The front of the Datalogic R Series device is protected during transport by a transparent film. This film should remain on the front during assembly to avoid damage to the front surface.

1. Only remove the film once all of the assembly work has been completed.
2. Take the foil off slowly and carefully, in order to avoid static loading. To high tension can damage the terminal.

5.7 PROTECTING THE TFT DISPLAY FROM THE MEMORY EFFECT

The TFT display of the Datalogic R Series device has to be protected from the burning in of a motionless image. An image that has remained motionless for too long can cause irreversible damage to the display.

With TFT displays there no cathode rays burning in an afterimage as in old TV sets or monitors, but TFT displays still have a “memory effect”. This is because with a still image the liquid crystal molecules align themselves in a certain way and become inert if they are not moved.

Like burning in the effect is irreversible, but can be avoided by regularly turning off the display.

Define in the power management center of the utilized operating system that the display of the Datalogic R Series device should be turned off when no user input occurs. A motionless image can stay on the display for a maximum of 12 hours. After more than 12 hours there is the risk of the memory effect.

Important for the lifespan of the backlighting:

Choose a turn off time that is definitely not too short (not less than 30 min) since frequent turning on of the backlighting will noticeably reduce its lifespan. This particularly applies at low temperatures.

5.8 INSTALLING APPLICATION SOFTWARE

Depending on the application, install the software via WLAN or the USB client interface (ActiveSync).

5.9 IMPORTANT SOFTWARE SETTINGS

5.9.1 Wireless network

Depending on the optional equipment and specific use of the Datalogic R Series device, settings/access data must be defined for wireless networks such as WLAN.

For information on WLAN settings, refer to online help for the menu **Start | Settings | Network Dial-Up Connections**.

It is important to note that these settings are permanently saved when you:

- Enter the command `saveregistry` in the Windows menu **Start | Run | open** and acknowledge with **OK**.

5.9.2 Touch screen calibration

The Datalogic R Series is supplied pre-calibrated. In order to make fine calibrations:

1. **Press the touch screen until a shortcut menu appears (functions like a right mouse button).**
2. Open the menu **Admin Tools**.
3. Open the **Calibration** menu option and click on **Recalibrate**. Fine calibration now commences.

To permanently save this setting, the **saveregistry** command must be executed:

1. Press the touch screen until a shortcut menu appears (functions like a right mouse button).
2. Open the menu **Admin Tools**.
3. Click on the **Saveregistry** function.
4. Press **OK**.

The fine calibration has now been permanently stored.

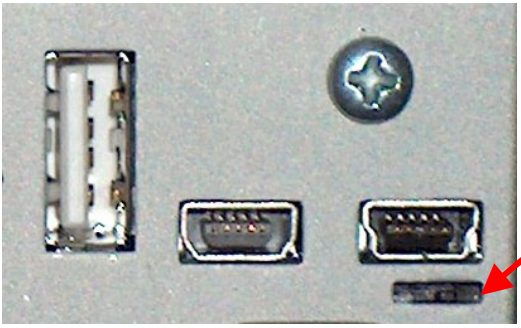
5.10 AFTER EXTENDED NON-USE

The Datalogic R Series device is delivered with the RTC battery switched off by default. The RTC battery powers the clock in the event of power failure (power reserve).

The RTC battery is switched on and off by means of a sliding switch located at the bottom right of the Datalogic R Series device connector bay.

The sliding switch must be switched on before starting up the device.

- To do this, gently push the switch to the left with a small screwdriver (with the display upwards).
- If the device is not going to be used for more than two weeks, the battery should be switched off to prevent a total discharge and thus battery damage.



Sliding switch on the right: RTC battery off

Sliding switch on the left: RTC battery on

Figure 5-6: Sliding switch

6 ACCESSORIES

This section covers the accessories available for the Datalogic R Series:

- External Keyboards
- Mouse
- USB Stick
- Scanner
- WLAN Cards
- CompactFlash

NOTE

Use only accessories for the Datalogic R Series that have been tested and approved by Datalogic. You can find out about approved items from your Datalogic sales office.

6.1 KEYBOARD

You can connect a USB keyboard to the Datalogic R Series device with a USB-A or USB Mini-A connector.

6.1.1 External keyboard

Two mountable external keyboards (QWERTY and ABCD layout; protection class IP 65) are available for the Datalogic R Series.

Figure 6-1: External keyboards - QWERTY and ABCD layout

6.2 MOUSE

You can connect a USB mouse to the Datalogic R Series device using a USB-A or USB Mini-A connector. The system only supports two mouse buttons.

6.3 USB STICK

You can connect a USB stick to the Datalogic R Series device with a USB-A or USB Mini-A connector.

6.4 SCANNERS

You can connect scanners via USB or serial port. If connected to COM1, the scanner can be powered through the port. Be sure to only use scanners that have been approved by Datalogic.

6.5 WLAN CARDS (PC CARDS)

WLAN cards are inserted in the PC card slot or the CF card slot.

Generally, you can only install drivers for WLAN cards that have been approved by Datalogic.

6.6 COMPACTFLASH

CompactFlash is currently included in the standard package.

7 MOUNTING

7.1 OPTIONS FOR MOUNTING THE DEVICE

WARNING

Risk of injury

The unit could fall during transit or installation/mounting and cause injury. Always ensure that there are two persons available when installing or removing the device.

Pay careful attention to the Important safety notices included at the start of this manual.

The Datalogic R Series can be mounted in a variety of ways:

- It can be positioned horizontally on a desk or mounted on a steering wheel and vehicle console.
- Wall mounts are also available for mounting the unit on machines and operating panels.
- Roof mounting is also possible, for example under the vehicle roof.

Depending on the vibration resistance and pivoting demands, mounting brackets, clamp foots or RAM mount elements can also be used to attach the device. Please contact your Datalogic sales office to find out more about the whole range of installation options on offer.

7.2 OBSERVE AND RETAIN THE MOUNTING INSTRUCTIONS

Please follow the installation/mounting instructions included with assembly kit when installing your Datalogic R Series device.

Please make sure that you retain the instructions. Pay careful attention to the important safety notices included in the beginning of this manual.

7.3 MECHANICAL DYNAMIC LOADING

Since the Datalogic R Series device is a weighted structure, it is invariable that the unit will be subject to mechanical dynamic effects. Therefore optimizing the mounting can be very helpful. Please refer to Appendix C: Mechanical dynamic loading.

7.4 POWER SUPPLY

An integrated, electrically isolated DC power supply is available for all devices of the Datalogic R Series.

The power adaptor is designed to fulfill the requirements for the full range of operating temperatures. In addition, you can operate additional modules and/or external devices.

7.4.1 DC power packs

Datalogic R Series devices are available with various integrated DC power supply units.

Datalogic R Series -7:

- DC power pack with 24/48 VDC input voltage, maximum output 30 W

Datalogic R Series-10 and R Series-12:

- DC power pack with 24/48 VDC input voltage, maximum output 100 W
- DC power pack with 24/48 VDC input voltage, maximum output 60 W

CAUTION

Datalogic R Series devices must only be connected to a SELV[6)] (Safety Extra Low Voltage) circuit. Ensure that there is a suitable disconnecting device such as a power switch or circuit breaker in the power supply circuit. Ensure that the disconnecting device isolates all supply voltage lines. Furthermore, the DC+ connecting cables must be protected by a fuse (16 AT max). The ignition connecting cables must be protected by a fuse of the following type: 5x20 mm T 125 mA L / 250 V, for example, a Wickmann 195-125 mA / 250 V.

[6)] The SELV circuit is a secondary circuit that is designed and protected so that its voltages will not exceed a safe value both when operating correctly or if a single error occurs.

7.4.2 Installing connecting cables

Use the connecting cables supplied to connect the Datalogic R Series device to the power supply.

Make sure that the connecting cables are laid without kinks and are protected.

7.5 VEHICLE APPLICATIONS (SUCH AS FORKLIFTS)

Pay special attention to the various electrical potentials when installing the unit on a vehicle (such as a forklift). In the Datalogic R Series devices, the logic ground and the shield ground are firmly linked.

The “logic ground” is the earth line (GND) for all of the internal electrical components, such as the hard drive and the CPU. Cable shielding, the housing and the ground conductor (in AC-powered units) are connected to the shield ground.

CAUTION

Carefully read the following warnings!

- When connecting a Datalogic R Series device, make sure that the on-board voltage of the vehicle and the terminal input voltage are compatible.
- The terminal input voltage is indicated on the device type plate and on the label for the pin configuration.
- Some forklifts have a frame that is connected to DC+. Therefore, the Datalogic R Series frame is also DC+. However, if you use peripheral devices that supply DC– to the Datalogic R Series device via an interconnector (such as a DC– serial interface), this will cause a short circuit. This will inevitably lead to malfunctions or even a total system failure.
- Please be aware that, for example, on forklifts with inverter drives, malfunctions can occur in the power supply that are beyond the potential tolerance of the Datalogic R Series device. In such cases the Datalogic R Series device can be irreparably damaged. In such circumstances it may be necessary to install a line filter. If required, contact your Datalogic sales representative.

7.5.1 DC terminals

In DC-powered devices, always attach ring tongue on the supply voltage cable to the ground bolt situated on the connector bay.

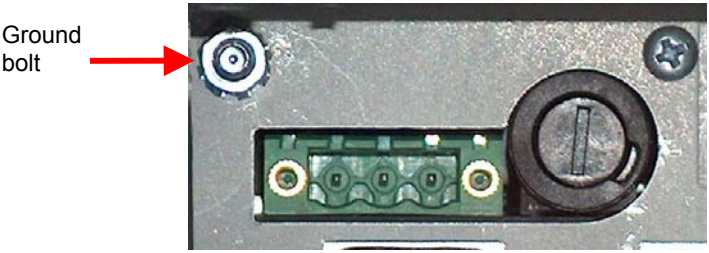


Figure 7-1: Position of the ground bolt

- The other end of the yellow-green supply voltage cable has to be connected to the vehicle's chassis
- Make sure that the Datalogic R Series device's connecting cable is terminated as close to the battery as possible. Connecting the Datalogic R Series device to large electrical loads, such as converters for the forklift motor may result in random restarts, malfunctions and/ or irreparable equipment damage to the system.
- If you want to connect devices fed by other power sources to the Datalogic R Series device (e.g. certain printers), make sure to power up the peripheral devices **at the same** time or **after** the Datalogic R Series device. Otherwise, you may encounter start-up problems, malfunctions or even irreparable damage to your system.

7.6 CABLE COVER (SPLASH GUARD)

CAUTION

For safety reasons, the supplied cable cover for the external ports must be installed prior to using the Datalogic R Series device.

7.6.1 Protection class IP65

In order to comply with protection class IP65, please use the available IP65 assembly kit from Datalogic. Please observe the installation instructions included with this assembly kit.

After finishing the mounting process the cables must be affixed using the included strain relief rail or strain relief clamp.

7.6.2 Protection class IP54

To ensure that the Datalogic R Series devices continues to conform to this protection category, proceed as follows:

1. Place the cables connected to and from the device next to each other. Avoid crossing the cables.
2. Attach the cables to the strain relief rail using the enclosed strain relievers or strain relief clamp. Ensure that the cables are attached exactly where the cable cover's cable opening is located.
3. Now attach the sealing ends onto the cables.

CAUTION

Take care not to damage the opening seal of the cable cover!

It should be possible to attach the cable cover to the cable duct without using force.

The neck collar screws should be screwed firmly, preferably diagonally and always using 5 rotations.

The screws need to be retightened after 2 days.

8 OPERATION

8.1 TOUCH SCREEN OPERATION

All Datalogic R Series devices are available with the option of a resistive touch screen.

The touch screen surface should be kept free of dirt, sand, stones, and similar materials, in order to prevent damage.

CAUTION

Inappropriate operation of the screen, for example by using sharp objects such as screwdrivers, will irreparably damage the touch screen.

Recommended operation of the resistive touch screen:

- Clean, dry fingers
- Clean, dry, soft gloves
- Suitable touch screen pencils (plastic or wood, rounded tip, maximum 4 H hardness)

Resistive touch screens may NOT be operated with:

- Ball point pens, pencils, or other inappropriate writing implements
- Unsuitable touch-screen pencils (harder than 4 H)
- Hand tools of any kind (such as a screwdriver)
- Sharp objects (knives, scalpels, etc.) that could damage the touch surface.

8.1.1 Dirty touch screen surface

If the touch surface is dirty, it must be cleaned **before** operation. Clean the touch screen according to the instructions in Chapter 15.2 (Never use sharp utensils, never use sulfurous cleaners).

8.2 OPERATING CONTROLS DATALOGIC R SERIES-7™

There are a number of indicator lamps and controls on the front of the Datalogic R Series-7.

Available models:
- Extended configuration with 17 keys

8.2.1 Horizontal/vertical versions

The Datalogic R Series-7 is available as a standard version for horizontal mounting. The version for vertical mounting has to be specifically requested as a special configuration.

8.2.2 Extended configuration (17 keys)

The R Series-7 extended configuration comes with 17 keys and three indicator lamps.

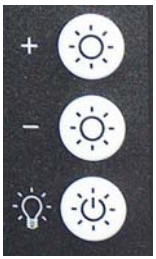
Figure 8-1: Datalogic R Series-7 horizontal, 17 keys

8.2.3 Brightness control

Note for units featuring **brightness control**: Even after manually turning off the display lighting, the Datalogic R Series-7 will continue to respond to input via the keyboard, mouse or touch panel. This means that you can continue to enter commands and data even if the display lighting is off.

8.2.4 Front controls

<table>
<tr><th>Indicator/control</th><th colspan="2">Explanation</th></tr>
<tr><td rowspan="3"> 
</td><td colspan="2"><Power> button to switch the Datalogic R Series-7 on/off: This button has been preconfigured by Datalogic to provide the following functions by default:</td></tr>
<tr><td>Datalogic R Series-7
with automatic switch-off</td><td><Power> button is not used for powering up the unit. If the button is pressed before the shutdown delay time has elapsed, the unit is powered down immediately.</td></tr>
<tr><td>Datalogic R Series-7
without automatic switch-off</td><td><Power> button is used to power up the unit. If the button is pressed while the unit is operating, this results in a HARD shutdown. This may lead to data loss!</td></tr>
<tr><td> 
</td><td colspan="2">Power (green LED): indicates connection to a power supply

Temp (red LED) indicates an excessively high or low temperature inside the unit</td></tr>
<tr><td> 
</td><td colspan="2"><+> button for manual brightness control

<-> button for manual brightness control

Switching the backlight on/off or toggling between manual and automatic brightness control</td></tr>
</table>

Indicator/control	Explanation
	These buttons have two functions: • **0** to **9** • When the <Shift>-key is held: Function keys <F1> to <F10>
	<Enter> key <Esc> key <Shift> key Status indicator of the <Shift> key

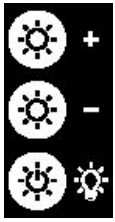
8.3 OPERATING CONTROLS R SERIES-10™ AND R SERIES-12™

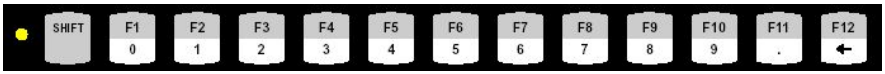
There are a number of indicator lamps and controls on the front of the R Series-10 and R Series-12. The expanded configuration of the device has 25 buttons.

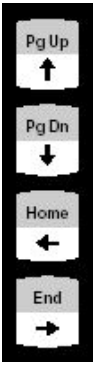
Figure 8-2: Operating controls R Series-10 and R Series-12

Note for all units featuring a **brightness control**: Even after manually turning off the backlighting, the Datalogic R Series device will continue to respond to interaction via the keyboard, mouse or touch screen. This means that you can continue to enter commands and data even if the display lighting is off.

8.3.1 Front controls

Indicator/control	Explanation	
	<Power> button to switch the Datalogic R Series-10 / 12 on/off: This button has been preconfigured by Datalogic to provide the following functions by default:	
	R Series-10 / R Series-12 with DC power supply and automatic switch off:	<Power> button is **not** used for powering up the unit. If the button is pressed before the shutdown delay time has elapsed, the unit is powered down immediately.
	R Series-10 / R Series-12 with DC power supply, without automatic switch off:	<Power> button is used to power up the unit. If the button is pressed while the unit is operating, this results in a HARD shutdown. **This may lead to data loss!**
	<+> button for manual brightness control (optional) <-> button for manual brightness control (optional) Turning the backlighting ON/OFF	
	**Temp** (red LED) indicates an excessively high or low temperature inside the unit **HD** (green) LED – not used **Power** (green LED): indicates connection to a power supply	

Indicator/control	Explanation
	
	yellow LED: indicates the status of the <Shift> key **<0/F1>**: digit "0", or function key <F1> if the <Shift> key is pressed to **<9/F10>**: digit "9", or function key <F10> if the <Shift> key is pressed **<. / F11>** decimal point, or function key <F11> if the <Shift> key is pressed **<🡐 / F12>** <Backspace or function key <F12> if the <Shift> key is pressed
	<S1> Special key Pressing this key has the same effect as simultaneously pressing the <Ctrl> and <+> key on the keypad <S2> Special key Pressing this key has the same effect as simultaneously pressing the <Ctrl> and <-> key on the keypad.
	<Esc> key <Enter> key, also called the <Return> key

	**↑/PgUp** “Cursor Up” or “Page Up” when pressing the <Shift> key **↓/PgDn** “Cursor Down” or “PageDown” when pressing the <Shift> key **←/Home** “Cursor Left” or all the way left on that line when pressing the <Shift> key **→/End** “Cursor Right” or all the way right on that line when pressing the <Shift> key

8.4 LED / OPERATING STATES

8.4.1 Datalogic R Series-7™

Status of internal LEDs		Device status
Power (green)	Temp (red)	
OFF	OFF	Device off, idle time (waiting for a new startup signal after switch-off), no power supply
OFF	FLASHING	Temperature sensor is malfunctioning
ON	OFF	Computer is starting up; normal operational state; shutdown delay time is running
ON	ON	Temp. < 0 °C or temp. > 50 °C
ON	FLASHING	Temperature sensor is malfunctioning

8.4.2 Datalogic R Series-10™ and Datalogic R Series-12™

Status of internal LEDs		Device status	
Power (green)	Temp (red)		
OFF	OFF		Initial state, idle time (waiting for a new ignition signal after switch-off), no power supply
OFF	FLASHING		Temperature sensor is malfunctioning
OFF	ON		Heating ON at temperatures < 0 °C, or Excess temperature warning Temp. > 62 °C ; Computer starts only after the temperature in the device reaches the range between 0 °C and 62 °C.
ON	OFF		Computer is starting up; normal operational state; shutdown delay time is running
ON	ON		Temp. < -5 °C or temp. > 70 °C
ON	FLASHING		Temperature sensor malfunction or configuration of automatic shutoff

9 BOOT LOADER

The Datalogic R Series bootloader initializes, configures and tests the hardware according to the settings. The operating system will then load.

The Windows CE 5.0 bootloader used in the Datalogic R Series models is based on EBoot from Microsoft.

The bootloader and operating system are described in greater detail in the Windows CE technical manual.

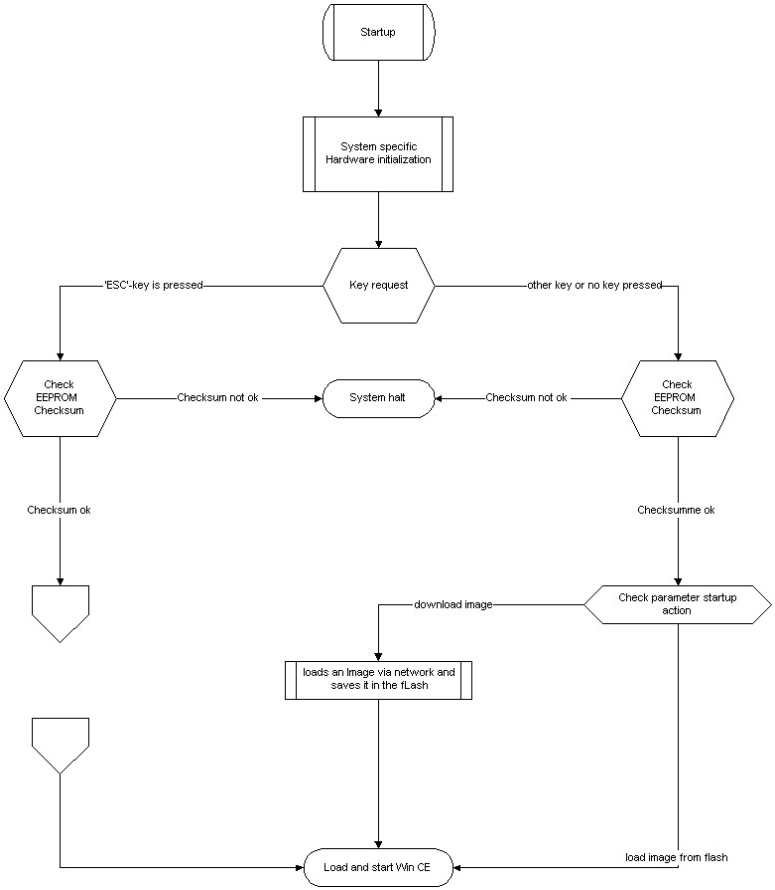


Figure 9-1: Boot loader diagram 1

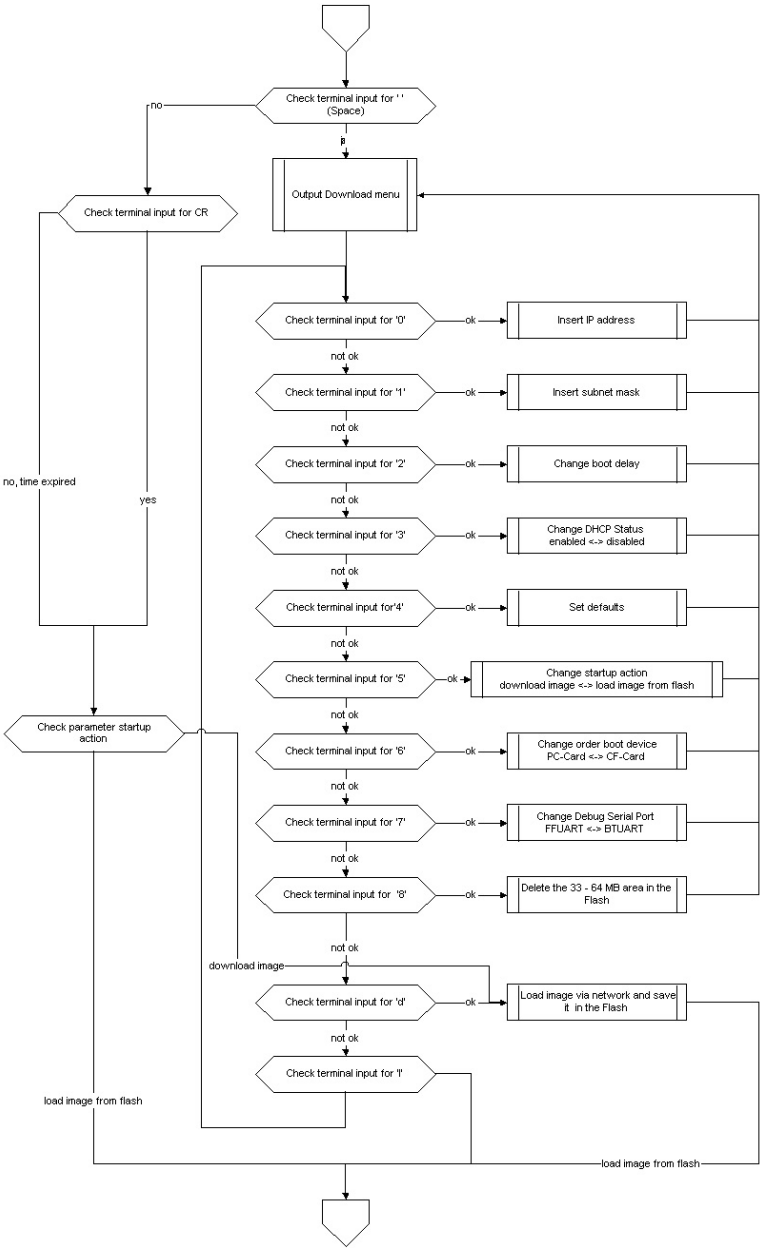


Figure 9-2: Boot loader diagram 2

10 OPERATING SYSTEM

The Datalogic R Series devices are available with the Windows CE 5.0 operating system.

The operating system is pre-installed at the factory.

The operating system pre-installed on the Datalogic R Series device is loaded following the bootloader system messages.

System-specific device drivers – such as those for display, audio, network via PC card, and touch panels – are also pre-installed.

Refer to the relevant operating system manual for specific operating instructions.

The operating system is integrated into a Flash memory module on the mainboard. Any memory that is not reserved for the operating system can be used by the user. It is also possible to add additional memory space through USB, SD cards or CompactFlash.

11 SOFTWARE APPLICATIONS

11.1 SETTINGS WITH PD.EXE

11.1.1 Configuring backlight, automatic switch off and more

The **PD.EXE** software is used to adjust important settings for the Datalogic R Series models with Windows CE such as backlighting, automatic switch off and in some cases the front keyboard assignment.

Please note that you can only implement these settings if you have purchased the respective option.

11.1.2 PD.EXE dialogs horizontally or vertically

PD.EXE dialogs are either displayed horizontally or vertically depending on which display setting you have selected on the Datalogic R Series device.

11.1.3 Save PD.EXE settings

To save the PD.EXE settings, it is enough to exit the corresponding program dialog using **OK**. It is NOT necessary to execute the `saveregistry` command.

11.1.4 Launch PD.EXE

Due to the special interaction between the hardware and software, the PD.EXE software can be only launched simultaneously once. A subsequent launch will result in an error.

First check that **no** check symbol is displayed in the task bar. If the symbol is shown, this indicates that the program is already running.

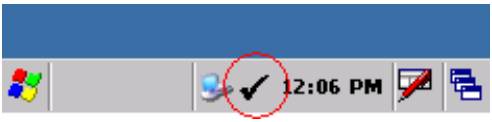


Figure 11-1: Symbol for launched PD.EXE in the task bar

Automatical start

The Datalogic R Series device is generally configured at the factory so that the PD software launches automatically when starting up the computer.

Programs to be automatically started are found under **Windows | Startup**.

Manual start

A manual start may be required if the PD program has been closed by clicking on the **Advanced | Exit** menu option.

If this menu option is deactivated, it may be possible that you do not have the necessary permission to quit the program. Further information on this topic can be found under **Advanced | Set User Permissions**.

Clicking the "x" at the top right of the window does not close the program, but simply minimizes the software window.

To ensure that a manual start works:

- You need to show the hidden files and '**My Device** -> **Windows** -> **StartUp'** folders.
- You need to show the **protected operating system files**.

If these folders are not shown on your Datalogic R Series device:

1. Click **View** followed by **Options** from the menu bar.
2. Deselect the checkboxes: **Do not show hidden files and folders** and **Hide protected operating system files.**
3. Click OK. The **Windows** folder is now displayed
4. Select the **StartUp** folder.
5. You can double-click the Datalogic PD symbol to launch the software.

Startup screen

When launching the PD software the system displays an initialization screen. This screen is displayed irrespective of the start-up method used.

The system carries out three tests before activating the software.
- Open COM port
- Create communication link with environment controller
- Load setup

If the program has been successfully started, a check symbol will appear in the task bar.

If one of the tests fails, the software will not launch. Should this occur, please consult Datalogic support.

If you try to launch the software a second time, an error will occur and the second instance will terminate in error.
- Click the check symbol to open the program.

11.1.5 Menu bar

If some of the options in the menu bar are grayed out, then you may not have the necessary permission to modify these settings. Further information can be found in chapter **Advanced | Set User Permissions**.

11.1.6 Options menu

The **Options** menu contains the following functions:

- Backlight
- Set Front Keys
- Switch Off
- USB-Port Config
- Remote Control

Backlight

Clicking the **Backlight** function will result in the following dialog box:

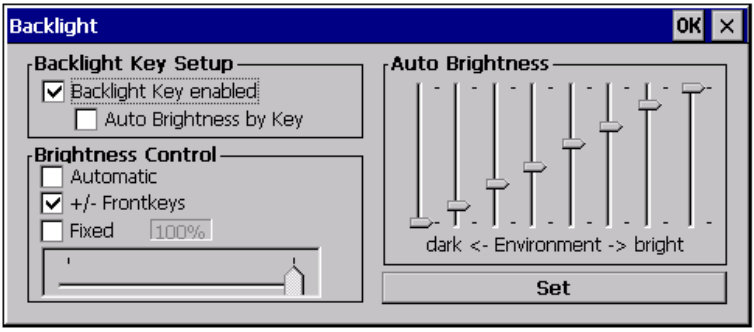


Figure 11-2: Setup dialog box for backlight

Configuring the backlight key setup:

Backlight Key enabled	Enables or disables the backlight key on the front of the device.
Auto Brightness by key	**Please note**: Auto brightness control is only available on the Datalogic R Series-7 device! Press and hold the backlight key for approx. 3 seconds to toggle between automatic and manual brightness control. You can set the brightness manually using **+/- Front keys** or **Fixed**. Both the automatic **and** the manual controls must be selected. If you select only one method of control, you will not be able to toggle between the two control modes.

Configuring the brightness control:

You can only select one mode for brightness control.

Exception: In order to toggle between the two control modes from the device front, the **Auto Brightness by Key** option must be activated. This offers two modes for selection. Further information can be found under the section on **Backlight Key Setup** above.

+/- Front keys	Enables or disables the keys + and - on the front of the device
Fixed	Configures a fixed brightness for the display. Use the slide control to set the desired brightness.
Automatic	**Please note**: The brightness sensor is only available on the Datalogic R Series-7 device! This function enables the brightness sensor on the front of the device. Use the slide control to set the desired brightness curve for the display.
Set	Saves and activates your settings. You can also save the settings by clicking **OK**. This button allows you to test the various settings without having to close the dialog window.

Set Front Keys

Using **Set Front Keys** you can assign the front keys on the Datalogic R Series with particular commands or with program activation. When the function opens up, an interactive graphic appears with all available keys on the Datalogic R Series device.

- In the graphic, touch one of the front panel keys to configure it.

Parameters:

Switch front Shift ON	Activate or deactivate the <Shift> key
Editor line	This displays the code that is automatically generated with configuring a key. If, for example, the key “0” is selected from the list (like in the illustration), the code K\0 is displayed. This line can also be edited by hand.
Clear key	Delete an existing entry (for the colored key indicated in the list of options). The accompanying code can be seen in the editor line in the upper part of the dialog. At the end of the process, this editor line is empty.
Save key	Save the configuration just made.
Add key	Transfer a key from the list to the editor line.
List of available functions	Selection list of all available keys
Key up / key down	Check off whether the desired key should be simulated with “press and release” action. One example of a case where only pressing (down) is desired is with the <Shift> key, which is usually pressed together with another key.
Start program by key	Data entry line for starting a program
Add program	Enter a program on the editor line

Virtual key codes

Action keys can also be programmed with Windows virtual key codes. The virtual key codes are entered on the editor line and stored with the **Save Key**.

Virtual key code names can be obtained, for example, from the Microsoft MSDN website (Microsoft Developer Network).

Automatic switch off

This option allows you to configure the automatic switch off for Datalogic R Series devices.

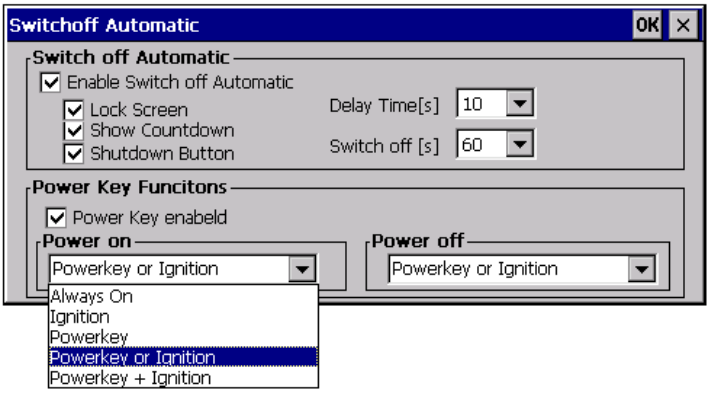


Figure 11-3: Automatic switch off Dialog PD.EXE

Automatic switch off

You can only implement this setting if you have purchased the automatic switch off option.

The parameters for this dialog box are:

Enable Switch off Automatic Lock Screen	Enables or disables the automatic switch off Disables input from the keyboard or touch screen for the specified delay time
Show countdown	Displays the countdown screen until the system powers down.
Shutdown Button	Displays the off button on the countdown screen.
Delay Time	Time between switching off the ignition and starting shutdown. If the ignition signal is restarted, the system will return to standard operation
Switch off	Time until the applications have been shut down. This time interval starts at the end of the delay time or once the power key on the front of the device has been pressed

Power Key Functions

Power Key enabled	Enables or disables the power key on the front of the device If the key is disabled, you cannot use it to switch the power supply on or off.

Power on

Proceed carefully with these settings! These definitions determine which action starts the Datalogic R Series terminal.

CAUTION

*Do NOT select **Ignition** if an ignition cable has not been connected. If you select **Ignition** and an ignition cable has not been connected, the Datalogic R Series terminal will no longer start.*

*Do NOT select **Power key or Ignition** or **Power key + Ignition** if an ignition cable has not been connected. If you select one of these settings and an ignition cable has not been connected, the Datalogic R Series terminal will no longer start.*

Always On	The Datalogic R Series switches on as soon as it is supplied with power. It is not necessary to press the <Power> key or start the ignition.
Ignition	The computer switches on automatically when the ignition is started. It cannot be switched on with the <Power> key.
Power key	The computer can be switched on with the <Power> key. If the <Power> key is disabled, you cannot select any options for the <Power> key.
Power key or Ignition	The computer can be switched on with the ignition signal or the <Power> key.
Power key + Ignition	The computer can be switched on with the <Power> key if the ignition is on. It cannot be switched on with the <Power> key alone. If the <Power> key is disabled, you cannot select any options for the <Power> key.

Power off

Proceed carefully with these settings! These definitions determine which action switches off the Datalogic R Series terminal.

CAUTION

*Do NOT select **Ignition** if an ignition cable has not been connected. If you select **Ignition** and an ignition cable has not been connected, the Datalogic R Series terminal will shut down after the delay time expires.*

*Do NOT select **Power key or Ignition** or **Power key + Ignition** if an ignition cable has not been connected. If you select **Power key or Ignition** or **Power key + Ignition** and an ignition cable has not been connected, the Datalogic R Series terminal will shut down after the delay time expires.*

Always On	The Datalogic R Series switches off as soon as it is no longer supplied with power.
Ignition	Switching off the ignition activates the automatic switch off function.
Power key	The computer is shut down or switched off with the <Power> key (if no automatic switch off is available, a hard shutdown takes place).
Power key or Ignition	The computer can be switched off with the ignition signal or the <Power> key.
Ignition + Power key	Automatic switch off is activated when the ignition is switched off. The <Power> key shortens the defined delay time and initiates computer shutdown.

USB-Port Config

This menu allows you to configure the USB interfaces.

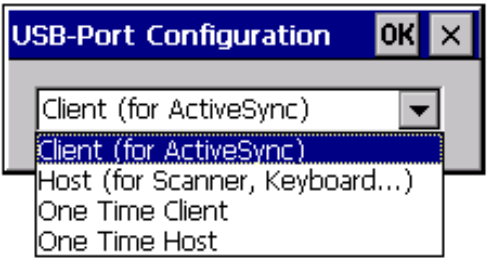


Figure 11-4: USB-Port Configuration in PD.EXE

Client (for ActiveSync))	The USB client is active; the USB host port is inactive.
Host (for scanner, keyboard, …)	The USB host is active; the USB client port is inactive.
One Time Client	The USB client is non-recurring and is only active until the next computer start. Then the USB host automatically becomes active again.
One Time Host	The USB host is non-recurring and is only active until the next computer start. Then the USB client automatically becomes active again.

Remote Control

This function was not yet been implemented upon publication of the manual.

11.1.7 Advanced menu

The **Advanced** menu offers the following functions:

- Change Running Mode
- Change EE-Data
- Upgrade
- PIC-Update
- Set User Permissions
- Production Set
- Exit

Change Running Mode

The **Change Running Mode** menu option allows you to modify the running mode of the PD program. The system offers three permission levels: **User**, **Admin** (administrator) and **Service**.

The program launches in the User mode by default. This is indicated by the black check symbol in the task bar. You can modify the user permissions in the Administrator or Service mode. The Service password is intended for Datalogic support only.
Enter Password

Admin	You must enter the Administrator password here . The default password for the Administrator mode is 'gold'.
Datalogic	You must enter the Service password here. The service password is intended for Datalogic support only.

- Click **Enter** to confirm.
  The color of the check symbol will then change to yellow.

The process can be terminated for security reasons by pressing the enter key on the keyboard. The existing run mode remains unchanged.

Change Admin Password

New Password	To change the Administrator password, first log in as an administrator and then enter the new password in the **New Password** field.
Confirm Pass	Re-enter the password to confirm. Both entries must be identical.

1. Click **Change** to accept the new password.
2. Click **OK** to close the dialog box. The password is then changed. If the password fields are cleared, this indicates that the entries were not identical. Re-enter the password.

Change EE-Data

CAUTION

This option is ONLY available to Datalogic technical support. Incorrect settings may damage the hardware.

PIC-Update

This menu option is used to update the software for the internal environment controller.

The **Firmware** option lists the versions of the **PIC Application** and the **PIC Boot loader**.

Enter the name of the new image file (e.g. `org2.hex`) in the text field under **Image File** and click **Start Update**.

CAUTION

Be sure to only use Datalogic images. The use of incorrect software may damage the hardware.

Set User Permissions

This menu option allows you to set the user permissions for the PD software.

The administrator (**Admin Mode**) defines the available functions for the **User Mode**.

Click the checkboxes for those menu options that may be selected by the user. All other menu options are disabled for the User mode permissions.

Exit

The PD program is terminated without first displaying a confirmation dialog box.

When exiting the program, please note: the front keys require the PD software to function correctly!

11.1.8 Info menu

In the **Info** menu, you can:

- display the software version of PD.EXE by clicking **About**
- access system-specific information by clicking **System Info**
- save system specific files in a textfile with **Make Report** (only for Datalogic service!)

About

If you click the **About** menu option, the system will display a small dialog box with the software version and Datalogic copyright.

System Info

Click the **System Info** menu option to display system-specific information. This information is only useful for Datalogic development and support.

Make Report

Using **Make Report**, system-specific files are stored in a text file (only relevant for Datalogic Service!). The file “Report.txt“ is located under “My Device.”

12 SERIAL PORTS

The Datalogic R Series devices have two serial ports RS-232

12.1 COM1 OPTIONS

COM1 comes with a “full function” UART. All of the pins are reserved and can be used.

If using the COM1 port to power external devices, please note the following:

- The COM1 port (optional) can supply externally connected equipment with +12 V or +5 V of power. In this case, the RI functionality is not available.
- The voltages are protected by internal fuses which limit the total consumed current to 1 A at 5 V (including keyboard and mouse).
- The current consumption at 12 V is also limited to 1 A by a fuse. Depending on the specific system configuration, the maximum current consumption at +12 V may be significantly lower.

12.2 COM2 OPTIONS

COM2 comes with a standard UART. The pins TxD, RxD, CTS, RTS are reserved and can be used.

12.3 CABLE LENGTHS AND GROUND LOOPS

Note that according to the EIA-232-E specification, the maximum cable length is 15 m at 19,200 bps.

By using a correctly terminated twisted-pair cable, however, up to 1.200 m at 100 kbps can be achieved according to the EIA-422-A specification. With a data rate of 1 Mbps and a high-quality cable, it is possible to reach line lengths of up to approximately 400 m.

Malfunctions in the RS-232 connections are frequently caused by ground loops. If both end devices establish a ground connection via RS-232 but do not share the same ground potential in their power supply circuits, then compensation currents may result. This is particularly noticeable with long cables.

These compensation currents, which are also present at the ground point of the RS-232 connection, may significantly degrade signal quality and effectively stop the data

flow. In challenging environments, electrically-isolated connections (via external converters) or differential systems (RS-422/485 standard) are strongly recommended.

13 TOUCH SCREEN (OPTION)

The Datalogic R Series is optionally available with a resistive touch screen.

The resistive touch screens from Datalogic have a sandwich construction. The front control panel is made of polyester and is separated from the back through very small spacer dots. The rear of the front and the face of the back are covered which a conductive layer. Voltage is applied at the corners of the back. By creating the contact between the surface of the front and the conductive layer the electric circuit is closed, and the contact point can be calculated from the voltage differences.

13.1 MOUSE AND KEYBOARD COMPATIBILITY

Touch screens on the Datalogic R Series can be operated with or without a keyboard and are also compatible with a mouse.

13.2 FUNCTIONAL DESCRIPTION

A touch screen controller is integrated into the mainboard to analyze the resistance changes caused by touch. The touch screen controller provides the resulting data to the operating system's touch screen software driver.

The analog touch panel controller used for analysis provides a resolution of 1024 x 1024 pixels (10-bit horizontal and vertical).

13.3 OPERATION

Inappropriate operation of the screen, for example, by using sharp objects such as screwdrivers, will irreparably damage the touch screen.

Please observe chapter 8.1.

13.4 DRIVERS

Touch screen drivers are a core component of Datalogic Images for Windows CE.

13.5 CALIBRATION (WINDOWS CE)

The touch screen must be calibrated before use:

1. To do this, start the Datalogic R Series device and wait briefly until the operating system has launched fully.
2. Press the touch screen until a shortcut menu appears (functions like a right mouse button).
3. Open the menu **Admin Tools**.
4. Select the **Calibration** tab and follow the on-screen instructions.
5. At the end, execute the **Saveregistry** command
6. Confirm with **OK**. The settings are now saved.

13.6 RESISTANCE

13.6.1 Mechanical resistance

Pencil hardness test ASTM D 3363-92a

The resistive Datalogic touch screens have a hardness ≥ 4 H.

Test scale (from softest to hardest):

6 B, 5 B, 4 B, 3 B, 2 B, B, HB, F, H, 2 H, 3 H, 4 H, 5 H, 6 H, 7 H, 8 H, 9 H

13.6.2 Chemical resistance

The touch screen surface finish is unaffected by exposure to the following chemicals for a period of one hour at 22 °C, 45% relative humidity. ASTM-F-1598-95.

Household chemicals:

Tea, Coffee, Ketchup, Mustard, Vinegar, Beer, Coca-Cola®, Red Wine, Cooking Oil, Wisk®, Laundry Detergent, Fantastik®, All Purpose Cleaner, Joy® Dishwashing Liquid, Windex®, Formula 409® Cleaner, Clorox®, Bleach (5.25%), Hydrogen Peroxide (3%), Lysol, Ethyl Alcohol, Isopropyl Alcohol

Industrial Chemicals:

Acetone, Methyl Ethyl Ketone (MEk), Toluene, Concentrated Hydrochlorid Acis, Naptha, Mineral Spirits, Gasoline, 10W30 Motor Oil, Diesel Fuel, Transmission Fluid, Brake Fluid, Antifreeze, Hydrauic Oil

14 INTERNAL DEVICES

WARNING

The Datalogic R Series device is only to be opened for the purposes of adding or exchanging modules. Only qualified electrical or electronics engineers or persons trained by Datalogic are authorised to do this.

Before opening the unit, carefully read all the pages containing Important safety notices at the start of this manual. If you do not follow the safety instructions provided, the system may become damaged and all present or future guarantee and liability claims will be voided.

14.1 HEATING (OPTION)

The heating option extends the operating temperature range to -30 °C.

If you switch on a device at -30 °C, for example, the device is preheated for 15 minutes until it actually switches itself on.

NOTE

This heating option is only available for the Datalogic R Series-10 and Datalogic R Series-12 systems.

The heating option is not available for all types of displays. If required, please contact your Datalogic sales representative.

14.2 AUTOMATIC SWITCH OFF (OPTION)

Devices in the Datalogic R Series can be optionally equipped with an automatic switch off.

14.2.1 Configuration with PD.EXE

The PD.EXE program is installed in the Windows CE Image and allows you to configure the automatic switch off. Please refer to the instruction manual for this program in chapter 11.1.

14.2.2 Overview of configuration settings

Automatic switch off provides the following configuration settings:

	DC Power Pack
Without Automatic Switch Off	<Power> button 'on': Immediate switch on <Power> button 'off': Immediate switch off
With Automatic Switch Off	<Power> button or ignition 'on': Immediate switch on <Power> button or ignition 'off': • Switch off with delay time • Delay time can be shortened using the <Power> button • Ignition 'on' during the delay time interrupts the switch-off • The computer then switches to the switch-off time state • PD.EXE generates a system message similar to WM_QUERYENDSESSION • Applications have the switch off time at their disposal in which to end all currently running processes

15 MAINTENANCE

15.1 CLEANING THE HOUSING

For best results, clean the housing with a damp cloth.

CAUTION

Do not use compressed air, a high-pressure cleaner or vacuum cleaner, as this can damage the surface. Using a high-pressure cleaner poses the additional risk of water entering the device and damaging the electronics or display.

15.2 CLEANING THE TOUCH SCREEN

The touch screen's surface should always be kept clean of dirt, sand etc. to ensure full functionality of the display.

Do not use abrasive cleaning agents, as these may scratch the surface and lead to a deterioration in image quality.

The best results are obtained using a damp, non-abrasive cloth with any commercially available window cleaner that does not contain ammonia. Apply the window cleaner to the cloth instead of spraying it directly onto the touch screen surface.

Do not use sulfurous agents.

15.3 CLEANING THE COOLING FINS

To prevent a build-up of heat in the Datalogic R Series device, the cooling fins must remain free of dirt and dust.

For best results, clean the cooling fins with a soft brush.

CAUTION

Do not use compressed air or a vacuum cleaner, as this can damage the surface.

16 COMMON MISTAKES IN USAGE

16.1 POWER SUPPLY

An integrated, electrically isolated DC power supply is available for all devices of the Datalogic R Series.

- Observe the voltage range of the devices. It is important that the voltage does not lie outside of this range.
- Be sure to observe the correct polarity of the connection cables.

16.2 POWERING UP/POWERING DOWN

- Please note that the function of the **Power** button varies depending on how the device is configured (depending on the power supply and integrated automatic switch off).
- Only disconnect the computer from the power supply after the computer has been properly shut down and switched off. Otherwise file errors may occur on the storage device.
- The sliding switch for the internal RTC must be positioned to the **left** for operation (with the display upwards). If the Datalogic R Series device is to be stored for an extended period, move the switch to the **right** using a small screwdriver.

16.3 CABLE COVER

- The supplied cable cover for the external ports must be installed prior to using the Datalogic R Series device. In order to comply with protection class IP65, please use the available IP65 assembly kit from Datalogic.

16.4 MOUNTING

- Only use suitable mounting brackets and screws.
- Ensure that rotating bases and fastening arms are securely attached.
- Follow the instructions carefully when attaching all outgoing cables to the strain relief rail.
- The top cover hood of the wireless card serves to protect the card. Do not use it as a handle when turning, holding or lifting the terminal.
- All fastening bows and mounting parts supplied by Datalogic are only intended for use in the mounting of terminals and peripheral devices and may not be used for other purposes.
- However, changing conditions during mounting may result in operating states where it may be necessary to optimize the mounting process.
- When mounting peripheral devices, follow the manufacturer's instructions. This is particularly important when welding or drilling supporting parts.
- To avoid any accidents, make sure your field of vision is not restricted in any way when mounting peripheral devices. Observe all accident prevention regulations.

16.5 MOBILE APPLICATION ON VEHICLES

- Be sure to mount the device correctly in view of possible vibrations in the vehicle.
- Never connect a 24/48 VDC device to a 12 VDC vehicle!
- Never connect a 24/48 VDC device to vehicles with more than a 60 VDC voltage.
- Ensure that supply lines are fused correctly.
- Lay the supply cable so that it will not get crushed or frayed.
- Read the labeling on the cable and connect the supply cable with the correct polarity.
- Cut the supply cable as short as possible. This avoids tangled cables and improves the quality of the power supply.
- Observe the vehicle manufacturer's instructions for connecting additional loads , for instance, in conjunction with an emergency shut-off switch.
- Connect the supply cable to a suitable place. Ensure that the connecting cable has an adequate cross section and ampacity at the connection point.
- Please be aware that, for example, on forklifts with inverter drives, malfunctions can occur in the power supply that are beyond the potential tolerance of the Datalogic R Series device. In such cases the Datalogic R Series device can be irreparably damaged. In such circumstances it may be necessary to install a line filter. If required, contact your Datalogic sales representative.

16.6 USING THE TOUCH SCREEN

CAUTION

Do not use compressed air or a vacuum cleaner, as this can damage the surface.

- Never operate the touch screen with sharp or pointed objects such as screwdrivers, knives, scalpels, etc.
- Use only objects with a maximum hardness of 4H on the screen.
- If the touch surface is dirty, it must be cleaned before operation. Clean the touch screen according to the instructions in Chapter 15.2 (Never use sharp utensils, never use sulfurous cleaners).

16.7 CLEANING THE DEVICE

- For best results, clean the **housing** with a damp cloth. Do not use compressed air, a high-pressure cleaner or vacuum cleaner, as this can damage the surface. Using a high-pressure cleaner poses the additional risk of water entering the device and damaging the electronics or display.
- The **touch screen** should always be kept clean of dirt, sand etc. to ensure full functionality of the display. Do not use abrasive cleaning agents, as these may scratch the surface and lead to a deterioration in image quality. The best results are obtained using a damp, non-abrasive cloth with any commercially available window cleaner that does not contain ammonia. Apply the window cleaner to the cloth instead of spraying it directly onto the touch screen surface. Do not use sulfurous agents.
- To prevent a build-up of heat in the Datalogic R Series device, the **cooling fins** must remain free of dirt and dust. For best results, clean the cooling fins with a soft brush. Do not use compressed air or a vacuum cleaner, as this can damage the surface.

16.8 USE/STORAGE IN EXTREME TEMPERATURES

Please observe the maximum operating and storage temperatures of the Datalogic R Series device.
The temperature ranges depend on whether or not the internal battery is charging (only Datalogic R Series-10 and Datalogic R Series-12).

17 APPENDIX A: TERMINAL ASSIGNMENT (PINS)

17.1 EXTERNAL CONNECTORS

17.1.1 Power

DC voltage supply cable

The following diagram shows the DC device's supply connection cables.

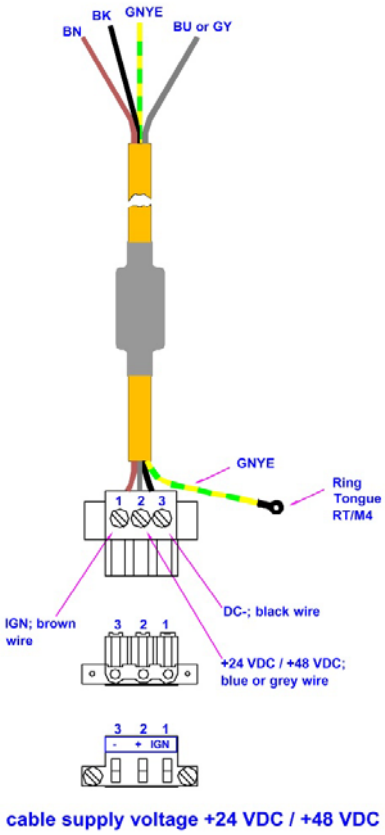


Figure 17-1: Cable supply voltage 24/48 VDC

17.1.2 Signal

USB Host 1
Version: 4pol. USB A, Mainboard ref. P18

Pin	Signal
1	+5V, 500mA fused
2	D-
3	D+
4	GND

USB Host 2
Version 5pol. USB A Mini, Mainboard ref. P19

Pin	Signal
1	VBUS
2	D-
3	D+
4	ID
5	GND

USB Client
Version 5pol. USB B Mini, Mainboard ref. P17

Pin	Signal
1	VBUS
2	D-
3	D+
4	ID
5	GND

Serial port COM1
Version: SUB-D, 9pol., MALE, Mainboard ref. P14

Pin	Signal	Name
1	DCD	Data Carrier Detect
2	RxD	Receive Data
3	TxD	Transmit Data
4	DTR	Data Terminal Ready
5	GND	Signal Ground
6	DSR	Data Set Ready
7	RTS	Request to Send
8	CTS	Clear to Send
9	RI / +5 V, 1 A fused / +12 V 1 A fused	Ring Indicate (to choose via P15)

Serial port COM2
Version: SUB-D, 9pol., MALE

Via adapter cable to mainboard ref. P16

RS-232 version

Pin	Signal	Name
1	n.c.	Not connected
2	RxD	Receive Data
3	TxD	Transmit Data
4	n.c.	Not connected
5	GND	Signal Ground
6	n.c.	Not connected
7	RTS	Request to Send
8	CTS	Clear to Send
9	n.c.	Not connected

PC Card
Mainboard ref. P4

Pin	Signal	Pin-Nr.	Signal
1	GND	2	D3
3	D4	4	GND
5	D5	6	D6
7	GND	8	D7
9	/CE1	10	GND
11	A10	12	/OE
13	GND	14	A11
15	A09	16	GND
17	A08	18	A13
19	GND	20	A14
21	/WE	22	GND
23	RDY/BSY	24	VCC
25	GND	26	GND
27	VPP	28	A16
29	GND	30	A15
31	A12	32	GND
33	A07	34	A06
35	GND	36	A05
37	A04	38	GND
39	A03	40	A02
41	GND	42	A01
43	A00	44	GND
45	D0	46	D1
47	GND	48	D2
49	WP/IOIS16	50	GND
51	GND	52	/CD1
53	D11	54	GND
55	D12	56	D13
57	GND	58	D14
59	D15	60	GND

Pin	Signal	Pin-Nr.	Signal
61	/CE2	62	VSS1
63	GND	64	/IORD
65	/IOWR	66	GND
67	A17	68	A18
69	GND	70	A19
71	A20	72	GND
73	A21	74	VCC
75	GND	76	GND
77	VPP	78	A22
79	GND	80	A23
81	A24	82	GND
83	A25	84	VSS2
85	GND	86	RESET
87	/WAIT	88	GND
89	/INPACK	90	/REG
91	GND	92	BVD2
93	BVD1	94	GND
95	D8	96	D9
97	GND	98	D10
99	/CD2	100	GND

SD/SDIO
Version: Reverse SD/SDIO – Socket, Mainboard ref. P6

Pin	Signal
1	DATA3
2	CMD
3	GND
4	VDD 3V
5	CLOCK
6	GND
7	DATA0
8	DATA1
9	DATA2

CompactFlash plug-in connector
Version: 2-row pin base, 50-pin, Mainboard ref. P3

Pin	Signal	Pin	Signal
1	GND	2	D3
3	D4	4	D5
5	D6	6	D7
7	/CE1	8	A10
9	/OE	10	A9
11	A8	12	A7
13	VCC0	14	A6
15	A5	16	A4
17	A3	18	A2
19	A1	20	A0
21	D0	22	D1
23	D2	24	WP/IOIS16
25	CD2	26	CD1
27	D11	28	D12
29	D13	30	D14
31	D15	32	/CE2
33	/VS1	34	/IORD
35	/IOWR	36	/WE
37	READY/IREQ	38	VCC1
39	/CSEL	40	/VS2
41	RESET	42	/WAIT
43	/INPACK	44	/REG
45	BVD2/SPKR	46	BVD1/STSCHG
47	D8	48	D9
49	D10	50	GND

n.c. = not connected

17.2 INTERNAL CONNECTORS MAINBOARD MDA2.10 05.2006

Overview:

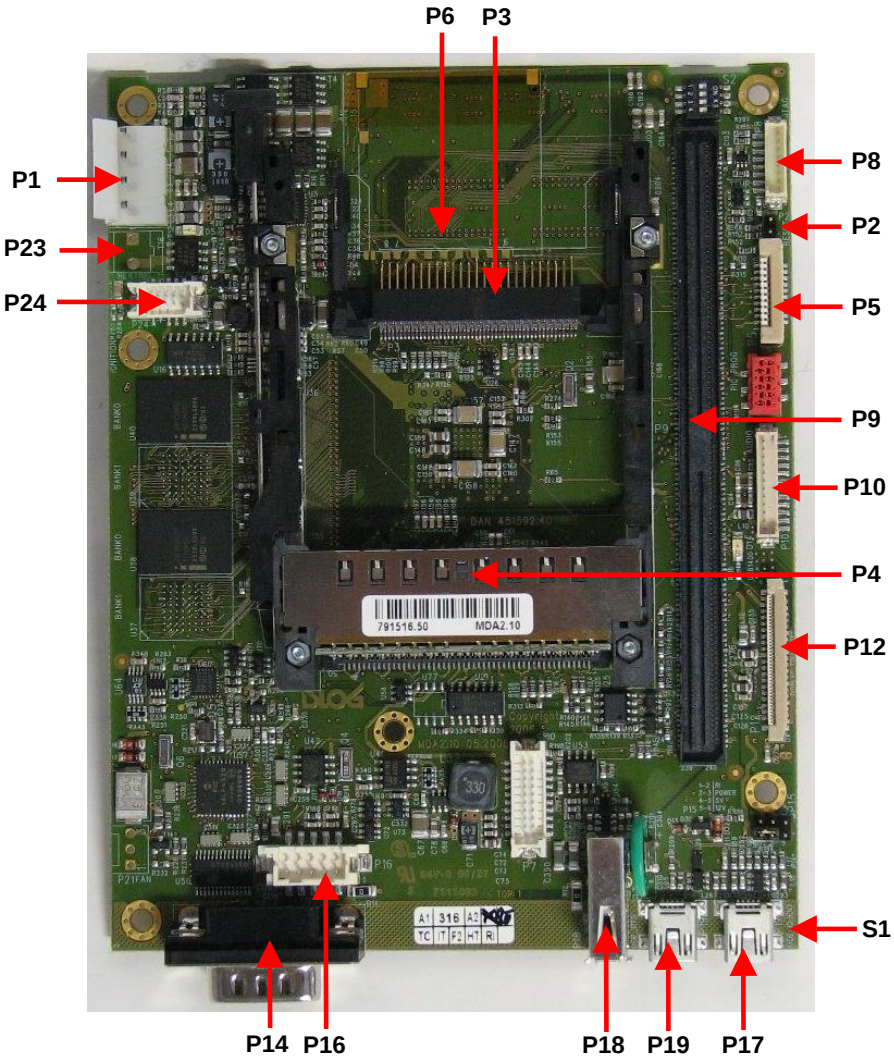


Figure 17-2: Internal connectors mainboard MDA2.10 05.2006

Extension connector

Version: Samtec BSE, 240pin., Mainboard reference P9

Pin	Signal	Pin	Signal
1	VP12_SW	2	VP12_SW
3	VCC5.0	4	VCC5.0
5	VCC3.3_SW	6	VCC3.3_SW
7	GND	8	GND
9	ED0	10	ED1
11	ED2	12	ED3
13	ED4	14	ED5
15	ED6	16	ED7
17	ED8	18	ED9
19	ED10	20	ED11
21	ED12	22	ED13
23	ED14	24	ED15
25	ED16	26	ED17
27	ED18	28	ED19
29	ED20	30	ED21
31	ED22	32	ED23
33	ED24	34	ED25
35	ED26	36	ED27
37	ED28	38	ED29
39	ED30	40	ED31
41	GND	42	GND
43	EA8	44	EA9
45	EA6	46	EA7
47	EA4	48	EA5
49	EA2	50	EA3
51	EA0	52	EA1
53	EA24	54	EA25
55	EA23	56	EA22
57	EA21	58	EA20
59	EA19	60	EA18

Pin	Signal	Pin	Signal
61	EA17	62	EA16
63	EA15	64	EA14
65	EA13	66	EA12
67	EA11	68	EA10
69	/EPOE	70	/EPWE
71	ESDCKE	72	ESDCLK1
73	GND	74	ESDCLK2
75	GND	76	GND
77	/ESDRAS	78	/ESDCAS
79	/ESDCS1	80	/ESDCS0
81	EDQM3	82	EDQM2
83	EDQM1	84	EDQM0
85	GND	86	GND
87	JTAG TMS	88	JTAG TD2
89	JTAG TCK	90	JTAG TDO
91	/SX_POE	92	/SX_PWE
93	PRD/WR	94	JTAG ENA
95	RDY	96	GND
97	GND	98	GND
99	/PCS2	100	/PCS4
101	/PCS0	102	/PCS1
103	MBREQ	104	MBGNT
105	GND	106	GND
107	/EXP_SL_CS0	108	/EXP_SL_CS1
109	/EXP_SL_CS2	110	/SRST
111	JTAG_PROG	112	/JRST
113	VCCORE	114	GND
115	EXP_SL_ID0	116	EXP_SL_ID1
117	EXP_SL_ID2	118	EXP_SL_ID3
119	GND	120	GND
121	GND	122	GND
123	GND	124	GND
125	GND	126	GND

Pin	Signal	Pin	Signal
127	GND	128	n.c.
129	n.c.	130	n.c.
131	n.c.	132	n.c.
133	USIM_VS0	134	USIM_VS2
135	GND	136	GND
137	ABUS3	138	VCC5.0
139	ABUS2	140	GPIO86
141	ABUS1	142	GND
143	ABUS0	144	GND
145	UCB_GP6	146	UCB_GP3
147	UCB_GP7	148	UCB_GP2
149	UCB_GP8	150	UCB_GP1
151	UCB_GP9	152	UCB_GP0
153	GPIO97	154	UCB_GP4
155	GND	156	UCB_GP5
157	GND	158	GND
159	GPIO1	160	GND
161	GPIO101	162	GPIO102
163	GPIO41	164	GPIO0
165	GPIO84	166	GPIO12
167	GND	168	GND
169	USB_EXT	170	/PIC_RESET
171	GND	172	GND
173	COM3_TXD	174	COM3_RXD
175	GND	176	GND
177	COM2_TXD	178	COM2_RXD
179	COM2_RTS	180	COM2_CTS
181	GND	182	GND
183	COM1_CTS	184	COM1_RXD
185	COM1_DSR	186	COM1_DCD
187	COM1_TXD	188	COM1_RI
189	COM1_RTS	190	COM1_DTR
191	GND	192	GND

Pin	Signal	Pin	Signal
193	I/O_PIC3	194	I/O_PIC2
195	GND	196	GND
197	VP12	198	VP12
199	VP12	200	VP12
201	GSM_ALARM	202	VBAT
203	SDA1	204	SCL1
205	GND	206	GND
207	SDA0_3.3	208	SCL0_3.3
209	GND	210	GND
211	AIN1	212	I/O_PIC1
213	GND	214	GND
215	VP12_SB	216	VP12_SB
217	VP12_SB	218	VP12_SB
219	/BATT_FAULT	220	PWR_EN
221	/VDD_FAULT	222	/MRST_OUT
223	BOOTSEL0	224	/MRESET
225	SYS_EN	226	USBH_OPT_VB
227	USB_OPT_DM	228	USB_OPT_DP
229	GND	230	VCC_PIC
231	VCC3.3	232	VCC3.3
233	GND	234	GND
235	VP12_SW	236	VP12_SW
237	VCC5.0	238	VCC5.0
239	VCC3.3_SW	240	VCC3.3_SW

Heating
Version: AMP module, 2-pin, Mainboard ref. P23 (and P22 only for Datalogic R Series-10 and R Series-12)

Pin	Signal
1	12V
2	GND

Reset
Version: 1-row pin strip, 2-pin, Mainboard ref. P2

Pin	Signal
1	GND
2	/RESET

SDIO
Version: Molex 52610-10 1-row, 10-pin, Mainboard ref. P5

Pin	Signal
1	VCC_SDIO
2	CLK
3	VCC_SDIO
4	CMD
5	DATA0
6	DATA1
7	DATA2
8	DATA3
9	GND
10	GND

JTAG
Version: Hirose DF13 1-row, 8-pin, Mainboard ref. P8

Pin	Signal
1	/SRST
2	/JRST
3	TDO
4	GND
5	TCK
6	TMS
7	TDI
8	+3,3 V

Input voltage connector
Version: 1-row pin strip, 3.96 mm grid, 4-pin, Mainboard ref. P1

Pin	Signal
1	+12 V
2	+12 V
3	GND
4	GND

Ignition signal connector
Version: Hirose DF13, 10-pin, 2-row, Mainboard ref. P24

Pin-Nr.	Signal
1	Zündungssignal
2	DC-IN-GND
3	n. c.
4	n. c.
5	SUPPLY-LOW-POWER
6	+12 V_STANDBY
7	GND
8	GND
9	SDA
10	SCL

COM2 serial port
Version: AMP MicroMatch socket strip, 10-pin, Mainboard ref. P16

Pin	Signal
1	DCD
2	DSR
3	RxD
4	RTS
5	TxD
6	CTS
7	DTR
8	RI
9	GND
10	+5 V fused

Front plug-in connector
Version: Molex 52559-40, 40-pin, Mainboard ref. P12

Connects the signals for the LCD screen, touch film, front keyboard, brightness sensor and inverter between the mainboard and the front.

Pin	Signal	Pin	Signal
1	VCC3.3_SW	21	TX+
2	VDIMM	22	TY-
3	VCC_PIC	23	TY+
4	VP12_SWS	24	VCC5.0_LCD
5	VP12_SWS	25	VCC3.3_LCD
6	SWITCH0	26	LV_Y3P
7	SWITCH1	27	LV_Y3M
8	SWITCH2	28	GND
9	SWITCH3	29	LV_CLP
10	SWITCH4	30	LV_CLM
11	SWITCH5	31	GND
12	GND	32	LV_Y2P
13	BKLPWM5.0	33	LV_Y2M
14	BKLEN	34	GND
15	TEMPLED_CON	35	LV_Y1P
16	SHIFTLED_CON	36	LV_Y1M
17	BSENSE	37	GND
18	GND	38	LV_Y0P
19	VCC5.0	39	LV_Y0M
20	TX-	40	GND

18 APPENDIX B: JUMPERS

18.1 WARNING

For the operation and settings of the hardware configuration described above, the jumper positions do not need to be changed.

CAUTION

Changing the jumper positions can impair the function of the Datalogic R Series device or destroy the unit! if the jumper settings are changed, Datalogic is no longer liable for warranty claims!

18.2 STANDARD JUMPER SETTINGS

The default jumper settings are marked " ***** ".

Take note of the visual representation of jumpers.

Jumper closed

Jumper open

18.3 JUMPER LAYOUT VIEW FOR MAINBOARD MDA2.10 05.2006

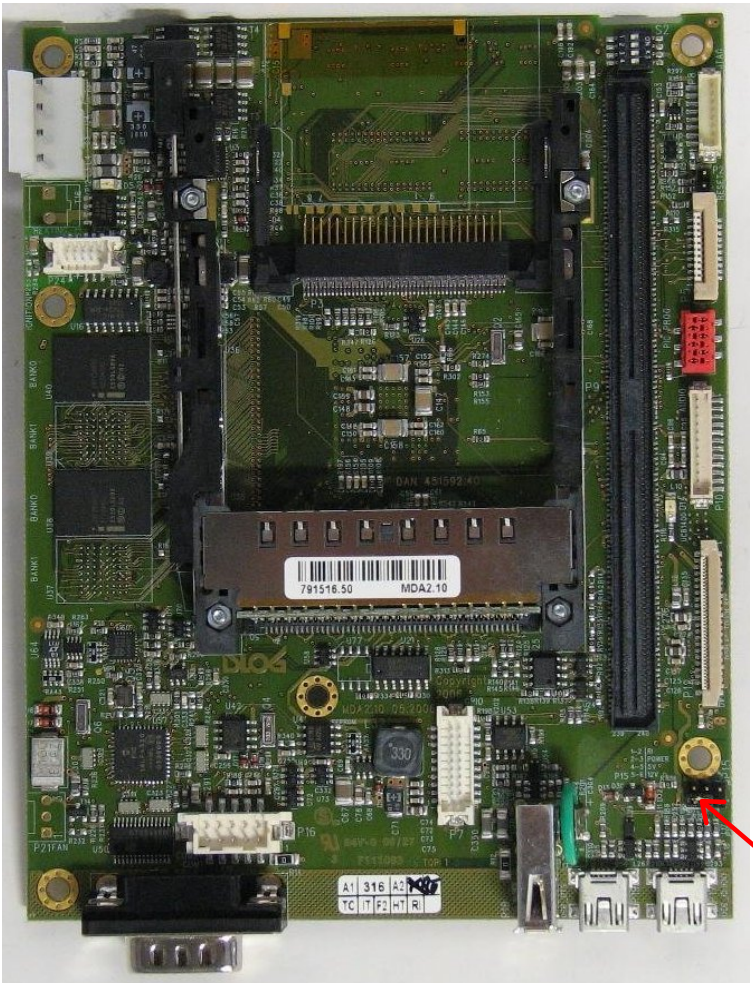


Figure 18-1: Jumper layout, Mainboard MDA2.10 05.2006

18.3.1 COM1 Configuration

Version: 2-row pin strip, 2.00 mm grid, 6-pin, Mainboard ref. P15

Jumper			Function
3	2	1	Pin9 is RI*
6	5	4	not required*

*) Factory setting

Jumper			Function
3	2	1	Pin9 is voltage supply
6	5	4	+5 V on Pin9

Jumper			Function
3	2	1	Pin9 is voltage supply
6	5	4	+12 V on Pin9

19 APPENDIX C: MECHANICAL DYNAMIC LOADING

19.1 INTRODUCTION

The mechanical environmental conditions of the Datalogic R Series-7, R Series-10 and R Series-12 can vary greatly in terms of vibrations, collisions and shocks.

The matter is made more difficult by the fact that the random values for acceleration and their frequencies for a given location are often unknown.

It is therefore useful to divide the values into three operation classes (5)M3, (5)M2 and (5)M1 on the basis of standards, previous measurements and experience.

The following standards offer a practical means of reference:

- DIN EN 60721-3-5:1997 Classification of environmental conditions, Part 3, Section 5: Ground vehicle installations.
- Military Standard MIL-STD 810F: 2000.

5M3 Mobile application

Operational environments with **high** energy vibrations and **high** energy shocks as well as **rough** handling / transport compliant with:

- Operation class **5M3** according to DIN EN 60721-3-5 or equivalent.
- Category **US Highway Truck** according to MIL-STD 810F.
- Examples: Vehicles without shock absorption: fork lifts, unbalanced machines: combustion engine of a construction machine.

5M2 Restricted mobile application

Operational environments with **low** energy vibrations and **high** energy shocks as well as **careful** handling / transport compliant with:

- Operation class **5M2** according to DIN EN 60721-3-5 or equivalent.
- Category **US Highway Truck** according to MIL-STD 810F.
- Examples: Vehicles with shock absorption: driver's cabin in a tractor, standing machines: tooling machines.

5M1 Stationary application

Operational environments with **low** energy vibrations and **medium** energy shocks as well as **very careful** handling / transport compliant with:

- Operation class **5M1** according to DIN EN 60721-3-5.
- Examples: Vehicles with very good shock absorption: car dashboard, immobile mounting surfaces: desk or wall.

19.2 USING THE DEVICE WITHOUT VIBRATION INSULATION

(tuned to a high frequency)

Selection criteria: stationary, limitedly mobile or fully mobile applications for which components offering insulation against vibrations cannot be used or are not required.

CAUTION

The Datalogic R Series system can vibrate and should therefore be installed as rigidly as possible.

With their variable mountings, the Datalogic R Series models form a spring-mass system that can result in excitation by one or more random vibrations or shocks from its environment.

The system reacts with natural oscillations, the amplitudes of which can be up to 20 times greater than the excitation amplitudes (resonance effects). The goal is therefore to remove resonance points of this kind or at least to tune the system to such a high frequency that they fall within the range of low excitation amplitudes.

For an initial assessment, you can test the device by hand. Bring the system to excitation by gently hitting it with your hand. If the Datalogic R Series device vibrates noticably and for an extended period, then the natural frequencyis probably too low. In this case, we recommend reinforcing the fixing points to the maximum bending moment (through the use of rigid sections, for example).

Practically speaking, natural frequencies above 100 Hz are sufficient. However, natural frequencies below 50 Hz are likely to lead to damaging amplitudes during resonance. As a result, fatigue fractures may occur along the outer mounting parts or on the internal electronic components. It is also possible that connections become unplugged.

19.3 APPLICATION WITH PASSIVE VIBRATION INSULATION

(tuned to a low frequency)

Selection criteria: Mobile application

NOTE

The system can be tuned to a low frequency by installing a flexible bearing.

For example, you can attach the mounting bracket to elastomer springs or rubber buffers.

The ideal total spring constant should be dimensioned in such a way to that the natural frequency of the system falls below the lowest excitation frequency.

All excitations with a frequency greater than 1.4 times the natural frequency would then be dampened by a counter-phase effect. This is practically impossible, if you consider that excitation accelerations within the range of around 10 Hz to 200 Hz or more may occur. Furthermore, the springs of the Datalogic R Series device would strongly deflect while static or visibly swivel while resonating (blurred display).
Based on our experience, we have found that the natural frequencies of unsprung ground vehicles lie between 15 Hz and 25 Hz. Although the elastic bearing does create an interfering resonance, it can suppress high excitation frequencies to various degrees of success.

19.4 DIMENSIONING EXAMPLE DATALOGIC R SERIES-10™

Example for dimensioning an elastic bearing with mounting bracket for mobile application

(in accordance with *Figure 19-1: Table-top attachment with elastomer springs*)

The Datalogic R Series-10 is screwed to a mobile mounting bracket.

Elastomer springs should be installed between the back of the mounting bracket and the assembly surface in the vehicle so that the depth can be adjusted

The point of resonance for the spatial axis with the greatest deflection should be 20 Hz.

a. What elastomer springs are suitable?
b. What insulating effects can be expected for different excitation frequencies?

Mounting example for table-top attachment with elastomer springs:

- Datalogic R Series-10 with mobile mounting bracket, Pivots up to 100 degrees
- Total oscillatory mass Datalogic R Series-10: approx. 5 kg
- 4 elastomer springs
- Diameter of 30 mm to 40 mm, hight of 20 mm to 30 mm
- Natural rubber

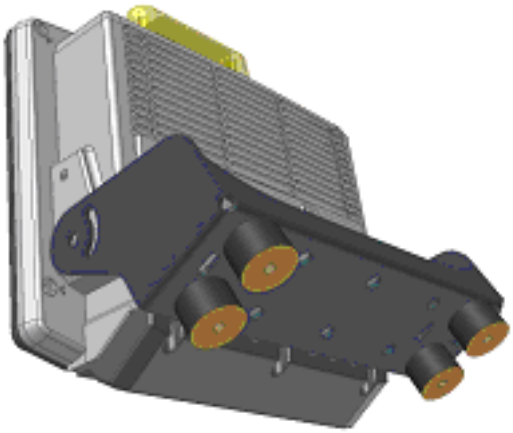


***Figure* 19-1: Table-top attachment with elastomer springs**

Approximate solution for the selection of elastomer springs

Since $\omega^2 = c / m$ we obtain the following relationship:

$$c \cong \frac{4\pi^2}{1000} \cdot m \cdot f_e^2 \approx 0{,}039 \cdot m \cdot f_e^2 = \underline{\underline{78N/mm}}$$

Whereby:

m	= oscillatory mass	= 5 kg
f_e	= natural frequency	= 20 Hz
c	= spring constant in N/mm	

This model applies to the oscillatory mass at the device's center of gravity. This is located around 150 mm above the mounting surface of the group of springs and also displaced from it.

To determine the spring constant for an individual elastomer spring, the leverages and arrangement of the springs (here in a triangle) must also be considered.

Furthermore, each of the 4 elastomer springs connected in parallel must deliver one quarter of the total spring constant, i.e., 78 N/mm / 4 = 19.5 N/mm.

Of the six degrees of freedom in which the Datalogic R Series-10 can oscillate, we only consider those with the greatest deflection for the sake of simplicity. In other words, we observe the display as it oscillates towards or away from us (a combination of rotational and longitudinal oscillation).

Comparative measurements for precisely the arrangement displayed in *Figure 19-1:* (construction of the mounting bracket, quantity and position of the elastomer springs) show that the individual spring must be stiffer by a factor of 38 for the mathematical model stated above to be applied.

CAUTION

Factors for other mountings with elastomer springs must be calculated through testing!

As a result, this model gives a value of 19.5 N/mm x 38 = 741 N/mm for the required single spring constant.

The next step is to look through the manufacturer's datasheets (such as those from gmt-gmbh.de or simrit.de) to find the right types of elastomer springs and rubber buffers.

Here we have decided to use springs with an M8 thread and cylindrical body made of natural rubber (NR). Based on the datasheet for a diameter of 30 mm and a height of 20 mm, for example, we arrived at the pressure load:

Compressive force 539 N / Displacement 1 mm = 539 N/mm for a Shore hardness A 70.

This value clearly lies below the default value. What is the natural frequency?

The following formula can be used to calculate the natural frequency:

$$f_e \approx 5{,}03 \cdot \sqrt{\frac{c}{m}} = 16{,}9\,Hz$$

With:

f_e	= natural frequency in Hz	
c	= total spring constant	= 539 N/mm (calculated from datasheet values) * 4 (springs) / 38 (factor) = 56.7 N/mm
m	= oscillatory mass	= 5 kg

This theoretical value of 16.9 Hz lies on the boundary of the natural frequencies of 20 Hz $\pm$ 5 Hz as measured in practice

The calculations depicted above are only approximations and thus we recommend a final **field test** with the selected elastomer springs.

Further possible steps for optimization

If it turns out that the Datalogic R Series-7's, R Series-10's and R Series-12's resonance deflections could be greater, the natural frequency can be reduced. In our selected example, softer elastomer springs with the same design could be used. In that case, it would still be possible that a Shore hardness of A55 activates approx. 12 Hz.

However, if the resonance deflections are too high (10 mm and more), the natural frequency should be increased. For example, using elastomer springs with a diameter of 40 instead of 30 mm or using an additional two springs.

The number, form, material type and arrangement of the elastomer springs can be used to control the natural frequency. As a rule, constructions with vulcanized fittings are used.

CAUTION

Static tensile loads on the elastomer springs should be avoided, as the elastomer can tear easily. A Datalogic R Series-7 / 10 / 12 should therefore never be suspended from elastomer springs.

19.4.1 Approximate solution for determining insulating effects

A transmission function can be used to reach an exact calculation. However, we will not detail this function here. The following equation is based on this transmission function (damping factors of approx. 0.05 for natural rubber) and is good for making estimates.

$$\textit{Isolation degree} \cong \left(1 - \frac{1}{\left|1 - \lambda^2\right|}\right) \times 100\,\% = \frac{\textit{Reaction acceleration}}{\textit{Suggestion acceleration}}$$

Whereby λ Excitation frequency / natural frequency

for λ unequal 1

Excitation frequency	Natural frequency	λ	Degree of insulation
10 Hz	20 Hz	0.5	-33 % Warning! Amplification!
20 Hz	20 Hz	1	Warning! Resonance, approx. -500 % and greater! High amplification!
ca. 28 Hz	20 Hz	√2	0, no insulation
40 Hz	20 Hz	2	66 %
60 Hz	20 Hz	3	88 %
80 Hz	20 Hz	4	93 %

Based on this table, we can clearly expect very good insulation for excitation frequencies that are twice as high as the system's natural frequency.

Consequently, the amplitude of the reaction accelerations of the Datalogic R Series-10 / 12 still only reaches 67% of the amplitude of the excitation accelerations, which actually have an effect twice that of the natural frequency.

The table also demonstrates the costs of achieving this, namely that all excitation frequencies below the natural frequency are amplified – to a maximum when resonance occurs.

Implication for designing computer mounts:

- If high energy excitation frequencies mainly occur at or below the natural frequency of the Datalogic R Series-10 or R Series-12 with its mounting, then you should not use a spring mounting. High energy excitation frequencies at or below the natural frequency can be found, for example, in a vehicle chassis tuned to a low frequency.

- However, if high energy excitation frequencies mainly occur above the natural frequency, it is recommended that you use passive vibration insulation for the computer. This applies to fork lifts without springs, with solid rubber tires or for unbalanced machineswith relatively constant and correspondingly high operating speed.

Random samples of fork lift rotors were taken and the field excitations measured:

Track:	Warehouses with loading thresholds, potholes and palette splinters
Amplitude of the excitation accelerations	Mean value ±1 g to ±2 g for all three spatial axes with peak values ±5 g approximately twice each minute and ±8 g to ±13 g occasionally
Excitation frequencies:	5 Hz to 200 Hz

These values can be assigned to operation class (5)M3.

CAUTION

The basic Datalogic R Series- 10 / 12 is designed for operation class (5)M3. Depending on the equipment (e.g. 24-key keyboard) and mounting types (e.g. with elastomer springs), the operation class can be reduced to (5)M2 or (5)M1. If you have any questions regarding the permissible operation class, please contact the Datalogic technical service department.

19.5 DETERMINING NATURAL FREQUENCIES

There are several ways of determining a system's natural frequencies:.

- Take field measurements with acceleration sensors and frequency analyses (very time-consuming, but produces accurate results for all spatial axes)
- Calculating the known static spring deflection using the following quantity equation (minimal measurement work, good approximation)

$$f_e \approx \frac{15{,}8}{\sqrt{x_{St}}}$$

Whereby:

f_e	natural frequency in Hz
x_{st}	static spring deflection in mm = deflection of the center of gravity in the direction of the gravitational force (for example using a mechanical timer)

NOTE

Further technical information can be found in the product documents provided by the elastomer spring manufacturers.

20 APPENDIX D: TOOLS

20.1 WARNINGS

WARNING

If you want to add extensions to the unit, carefully read the safety instructions provided at the start of this manual.

Also be sure to read the warnings and notices from chapter 2.4 Opening and closing the device.

The Datalogic R Series devices may only be opened for the purposes of adding or exchanging modules. Only qualified personnel or persons trained by Datalogic are authorised to do this.

Prior to opening the unit, make sure that the operating system has been shut down correctly and that the unit is disconnected from the power supply.

CAUTION

Observe the relevant accident prevention regulations when using tools of any kind.

To avoid damaging or destroying the unit, be extremely careful when opening it.

Note that opening the front of the device by more than 180° will damage the plastic hinges.

20.2 TOOL KIT

The tools listed below are required to assemble/disassemble the Datalogic R Series devices.

- 3-mm hexagonal screwdriver
- Phillips screwdriver, size 1
- Screwdriver, size 2
- Screwdriver, size 4
- Socket wrench, size 5 mm
- Socket wrench, size 5.5 mm
- Socket wrench, size 7.0 mm

20.2.1 Closing the device

The front is attached to the base unit with:

- Hexagonal screws M5 x 20 (V2A) with an inside diameter of 3 mm. These screws must be retightened with a torque wrench in all devices.

Procedure:
1. Retighten all the hexagonal screws in a **cross-wise** pattern to the following torque:
   Datalogic R Series-7: **3 Nm**
   Datalogic R Series-10: **3 Nm**
   Datalogic R Series-12: **4 Nm**
2. Tighten both screws in the temporary cap and antenna cap to a torque of **1 Nm**.

This also applies to IP65 covers!

20.3 MOUNTING BRACKET TOOL KIT

The tools shown in the figure below are required to adjust the Datalogic R Series mounting bracket:

- A 5 mm / 6 mm hexagonal socket wrench (allen key) for mounting and adjusting the **Fixed Mounting Bracket**.
- A 6 mm hexagonal socket wrench (allen key) for mounting and adjusting the **Mobile Mounting Bracket**.

***Figure* 20-1: Mounting bracket tool kit**

21 RETURN PACKING SLIP

Return packing slip (please fill in once per return shipment):

Company	
Street	
Postal code, town	
Contact	
Phone number	

Type(s) of unit(s) returned:

Serial number(s) of the unit(s) returned:

[ ] The units were not returned, as they are currently being used. However, the following parts are missing:

[ ] Unit was already damaged on delivery (please enclose a copy of the delivery note)

[ ] Delivery was incomplete

Missing parts:

[ ] The following error occurs when operating the unit:

[ ] Separate error report is enclosed

W

LIST OF FIGURES

KONFORMITÄTSERKLÄRUNG
DECLARATION OF CONFORMITY

gemäß den Bestimmungen der EG-Richtlinie über elektromagnetische Verträglichkeit 2004/108/EC und der EG-Richtlinie über Niederspannung 2006/95/EC sowie der RTTE EG-Richtlinie 1999/5/EG falls Datenübertragungsgeräte, die im 2,4GHz Band arbeiten, von DLoG installiert und als solche gekennzeichnet wurden.
(in accordance with the EU-Directive of Electromagnetic-Compatibility 2004/108/EC and the EU-Directive for Low Voltage 2006/95/EC of the council as well as the EU-Directive for radio equipment 1999/5/EC in case of data transmission equipment operating in the 2.4GHz band is assembled by DLoG and labled as such.)

Die Firma
(The Manufacturer)

DLoG
Gesellschaft für elektronische Datentechnik mbH
Werner-von-Siemens-Straße 13
D-82140 Olching
Germany

erklärt hiermit, dass das Produkt
(declares, that the product described in the following)

Geräteart: Terminal-PC
(Designation of device: terminal PC)
Gerätetyp: DLoG X 7 / DLoG X 10 / DLoG X 12
(Type of device: DLoG X 7 / DLoG X 10 / DLoG X 12)

mit den folgenden Normen oder normativen Dokumenten übereinstimmt:
(is conform to the following standards or normative documents:)

EMC-Störaussendung (EMC-Emission) / EMC-Störfestigkeit (EMC-Immunity):

EN 55022 : 2006 Class A	Information technology equipment – radio disturbance characteristics – Limits and methods of measurement
EN 55024 : 1998 + A1:2001 + A2:2003	Information technology equipment – Immunity characteristics – Limits and methods of measurement
EN 61000-3-2 : 2005	Electromagnetic compatibility (EMC) – Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)
EN 61000-3-3 : 2005	Electromagnetic compatibility (EMC) - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current <= 16 A per phase and not subject to conditional connection
EN 61000-6-2 : 2005	Electromagnetic compatibility (EMC) – Immunity for industrial environment
EN 300 328 V1.7.1	Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques
EN 301 489-17 V1.2.1	Specific conditions for 2.4GHz wideband transmission systems and 5GHz high performance RLAN equipment

Sicherheit (Safety):

EN 60950 : 2006	Safety of Information Technology Equipment, Including Electrical Business Equipment

Olching, 8.12.09
Ort, Datum (Date)

DLoG Gesellschaft für elektronische Datentechnik mbH
Werner-von-Siemens-Straße 13
82140 Olching bei München
Tel 08142/2868-0 Fax 08142/28688-10

Unterschrift (Signature)

Q:\ÜbergeordneteBaugruppen\888004_X7_X10_X12\DOC\KonformErkl_XSerie_ClassA.doc

NOTE

For all the regulatory information please consider that X-series products are the same as R-series products.

www.mobile.datalogic.com

World wide Sales Network
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